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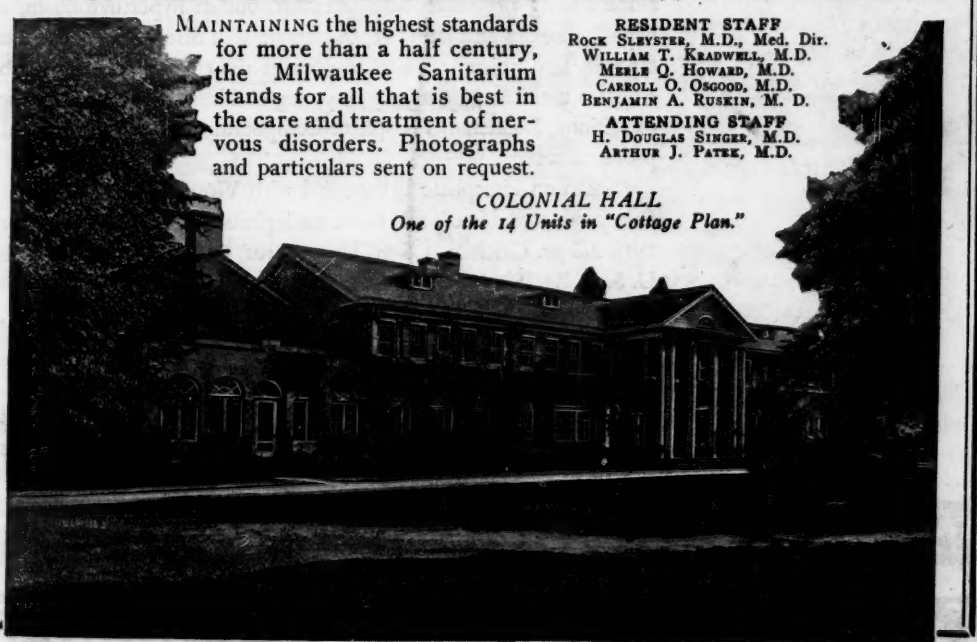

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Editorial

HAPPY NEW YEAR!

Life, they say, is what we make it. Since life is built up of years, then by deduction the years, *too, will be pleasant or fortuitous,* compensative, enriching, destructive or unhappy, just as we make them.

So to *wish* any one a "Happy New Year" at best can serve only as a reminder that we must *grow* happiness and prosperity with the care and the patience and the backbreaking labor attending cultivation of the fields. It is a necessitous husbandry of the individual's attitude and effort.

In the heart of many a patient, persevering, *self-sacrificing competent physician the country* over, this crop of happiness has gone sour in the last decade. Such a man is among those who ploughed under his service crops and found no government check waiting for him, but rather *another tax* to make such compensatory payment to other men, hitched to a prospect of further *"ploughing under" by the socialistic schemes* planned to put medicine under law control, and to take it away from professional guidance. Or to be more exact, to divest medicine of all scientific authority and to leave it the labor and the loss.

Hundreds of hardworking medical men of mature age, and that same maturity's accompanying, invaluable experience and perfected technique have been caught in the tendency by the general public and by legislative bodies to

"Ring out wild bells to the wild sky
Ring out the old, ring in the new!"

These men have confronted bills unpaid for services rendered; practice disorganized by the cataclysm of lay socialistic schemes estimated to deliver medicine into the hands of big business coupled for the nonce with masked communism, and only too often speaking through the mouthpieces of endowed foundations and socialistic legislation; steadily increasing taxes and a general "black eye" from misguided philanthropists both INSIDE the profession and without.

Such ingratitude on the part of a public served

unselfishly and with more generosity than can be found in any other line of service, save perhaps in those of missionaries of the churches tends to make a man of medicine feel himself akin to *King Lear*, and to merit perdon if he cry aloud,

"O sharper than a serpent's tooth, 'Tis to have a thankless public."

For such men the year 1936 brings at the outset at least a gleam of light upon the distant horizon. Awakening of the profession to the menace at the throat of medicine, is doubly as widespread as was such consciousness a year ago. With public policy subjected to the acid test of the approaching quadrennial general elections for the highest offices in the United States, the year 1936 places in the hands of every physician in the United States the most powerful weapon in the land,—*the ballot*. And in this hour no doctor dare let this weapon rust in its scabbard.

Politics is running the medical profession into the ground. Becoming Hahnemannic, and "fighting fire with fire," the doctors of the land can clean up the situation in what is practically the twinkling of an eye, if in union and steel-clad organization, they will fight politics with politics, by exercising democracy's greatest gift, the right to vote, following sage selection of candidates.

If every physician in the land will pledge himself to work even one tenth as hard to save the rights of medicine in the United States as that same physician works to save the life a malingering habituated-to-charity-service-patient, even those among the politicians who are medicine's worst enemies, then indeed is the battle won.

But there can be no dug-out fighting any place along the line. The coming campaign is all a matter of hand-to-hand combat in the front line trenches. To get this "Happy New Year" of 1936 and a few more after it, the physician, no matter how infinitesmally politically minded he may be, nor how deep in research, nor how engulfed in surgery, obstetrics or plain-old-fashicn-run-of-the-mill procure can waste a single day in getting this matter in hand. Research for a while, doctor, as to the qualities of the man who will sit in the city council, the state legislature, the congress of the United States or rule in the White House! *"Know thyself!"* Yes, and *know the other fellow* who is going to be your duly elected representative in compiling the code of existence for residents for your community; in levying the taxes that you will have to pay, in deciding how those taxes that you must pay will be spent, whether with frugal foresight or with everlasting extravagance. This, my dear doctor, is *your own personal affair*, just exactly as much as is the state of your teeth, or of your digestive apparatus, or the amount of gas in the tank before you climb into your flivver for a long cross country run to care for a confinement case.

At the end of the day of date December 29, 1934, experts estimated that so far for during the current fiscal year the expenditures of the government had averaged *$20,512,232 each day*. All the money that the government has comes from its taxes,—from out of the pockets of its citizenry. That means *your pocket* and *mine*, and that of *our neighbors*. It is held too, that this amount shows an *increase in daily expenditure* over the previous year of *$1,225,115 each day*.

All this, too, before assessments have been made for the new so-called "Social Security Act" which has been called in no uncertain terms the "largest tax bill to come out of Congress" and "of of doubtful constitutionality" and "of questionable social and economic wisdom." Almost five times the value of all the gold reserves of the world's central banks and governments would be needed to equal the gigantic reserves of some $50,000,000,000.00 which will be required by 1980 to meet the demands of this act.

To a man up a tree the whole scheme looks a lot like feeding a hen copious Vitamin E in the hope of getting her to lay three eggs a day. It has never been proven that with any this could be accomplished. Nor has it ever been estimated that a man can pay out in taxes more than he earns and at the time support himself. No matter how high-minded the intent of much of the legislation that is upon the statute books to-day, and much of it legislation so new that the sawdust of its hewing still bespatters the timber, the results can not be more than surfacely palliative and certainly not panaceal. Very few physicians if put to the query would have voted "yes" for those interfering laws and false doctrines. The greatest hope for the medical profession,—the only hope in fact—and the greatest hope for the general public, is a little *medical interference in politics* and in and around the *business affairs* of the *laity* and *a great deal less law and political interference* in and *about medical affairs*.

Admitted that "hope is faith in the evidence

of things unseen," still faith and hope have long been in every doctor's medicine chest as well as in his change-pockets, and no doctor will scoff at their promises. A very tangible promise and the fulfillment of many hopes lie potently in the doctor's vote, not only at the coming general elections but at the caucuses, the primaries and even the isolated ward meetings. Further, the doctors want to begin to talk politics and to live a little politics on the way.

That many physicians are becoming politically minded is a gay glint in the midst of the clouds of depression and war that surround us.

For threats of war hang over the head of civilization as a heavy sword of Damocles. The world is worn with trouble. And a great many doctors are worn with the world. It would seem however that in the United States, once we can stop this orgy of idiotic legislation and tax assessments that would have brought a blush to the cheeks of the extravagant Catherine the Great of Russia, that we are approaching the top of the hill. For the eyes of the medical profession are opening fast to the maneuvers of the communists and to the misguided ignorant law experiments with medicine and all its works.

It begins to look, too, as if a saner attitude would be taken during 1936 by medicine itself towards its own troubles, and complications.

Now that a slow realization and more careful analysis of the elements of cost in medical care removes from the medical profession the stigma of undue expense, and places this item where it belongs, at the door of the nurse, and the hospital, and only too frequently to the luxurious ideas of the patient and other general overhead, 1936 would seem to hold still another hope for the doctor. As it is now the doctor is lucky if he gets $100 out of every $600 spent in a case of ordinary hospitalized illness, and that only at painful and tedious long last.

Now that some of the younger men in the profession feel the pinch of competing with their various *almae matres* in graduate practice of medicine, a new spirit of resentment is springing up against corporations practicing medicine and endowed foundations of lay persons entering into the medical purlieus. This has always been a false hypothesis on the part of foundations and philanthropists.

Now that the echoes of what "state medicine" has done to the practice and the progress of medicine abroad come seeping with more lucidity in the United States, there is rising a demand from many sections to inform the *laity* more clearly as to what state medicine is, what it does and what it does not do; and further that state medicine is *not a gift* and never can be. There is no Santa Claus in state medicine, unless it be the ever overworked, underpaid and in such harness the diminshingly competent "panel doctor."

Once an ailment is diagnosed, American physicians can usually be depended upon to find a cure. These economic ills are not obscure even though they lie concealed by bales of fustian. Now that the medical eye has glimpsed them, if medical action shall follow there can not help but ensue for every physician and surgeon in the country a happy new year in 1936. To aid that medical action on its way, stand waiting neighborhood, community, city, county, state and national medical organizations. Join the band, doctor, lend a hand and achieve for yourself and others a prosperous, useful scientific life, as well as a highly happy new year.

WHY FIT DEMOCRATIC UNITED STATES WITH MONARCHIAL EUROPE'S SHOES?

Bending United States needs to analogous requirements of Europe is much like wearing the right shoe upon the left foot. This lusty young democracy has never offered life parallel to that of doddering lands across the sea.

Yet because Europe patches the holes in its economic pants with all sorts of shifts and makeshifts such as "health insurance," "panel practice" and "state medicine," why should this alert, well-fed and well clothed nation tear itself to pieces for the sake of wearing patches?

A sane man is at a loss to find a rational reason. Yet from Alaska to Florida, from Maine to Tia Juana, from Vancouver to the Gulf of Mexico, from the Great Lakes to the Mississippi bayous, this, our native land is riddled and raddled with propagandists who shout from the housetops that our land; our public health; our government; our treasuries, national commonweal, municipal and individual, will be chewed up by theorists and lost in an economic hell-fire unless poor old Europe's tonics, sedatives, general repairs, props and bolsterers-up are imme-

diately grafted upon the Spirit of 1776 and the Constitution of the United States.

The propagandists of course are thinking of their own pockets and their own power. The American citizen is too busy earning a living and too busy caring for his family to have much time to waste upon propaganda.

In these, our days of depression, if not of despair, the American citizen besides attending to his own dependents is trying to share the little he has with the fellow worse off than himself. This would seem to be the principle of fraternity, rather than the general destruction of everything so that everybody shall have nothing. However—Europhobians say that this is all wrong. America must scuttle the ship that has carried her into the forefront of nations in less than two centuries. All her log as a country is wrong. She must eschew it and pattern herself after Europe—a country almost eight centuries her senior. And the best way to start the job is to sink the profession of medicine, so far as America is concerned, to the deepest bottom of the bluest sea and the rankest depth of some wild morass.

One of the most popular battlecrys of the Europhobians is "Down with the high cost of medical care!"

Laying down the slogan for a moment, take a gilmpse of the "high cost of medical care."

For the rank and file of the 150,000 physicians laboring throughout the United States let it be set forth that the average annual compensation of these men in 1929 before the recent depression was $3,705 per annum. Some 24% had a net income of $2,000. Twenty-eight per cent had a net income of less than $4,000, and 75% had a net income of $7,000 or less.

With these figures in mind, what then, makes up the "high cost of medical care?"

The physician's bill is the last fee to be paid out of the household budget. In any case of emergency, maternity, operative or critical illness, the hospital bill is paid long before that of the doctor. Yes, "the hospital must live." But it is a fact that the modern hospital in far too many instances takes on all the atmosphere and aroma of a resort hotel. Comfort and care have become confounded. Luxury supersedes necessity. Long and expensive training of nurses, of dieticians and of administrative staffs takes toll. For a seriously sick man or woman or child, let it be granted that nothing this side of heaven is too fine, or too good to aid in recovery of life's richest asset, health.

Even so, there is a care commensurate with skill and perfection that does not need all the elaborate environment involved in much modern hospitalization. An infant prince may wear handwrought platinum pins to fasten his first diapers. But do these fastenings, these miracles of the jeweler's craft, function with any more efficiency than a standard steel clasp pin purchased for a dime a dozen?

What honest man or woman can make but one reply to that query?

To a certain degree that comparison is true of much of the high cost of modern hospitalization and to the so-called "high cost of medical care."

The modern hospital did not go grandiose on its own. Actually it was seduced. Much of its efficiency came from endowment, either by individual bequest or foundation intervention. So long as such aid stopped there, the idea was excellent. But when extravagance complemented efficiency the result begot chaos. Much of the intensified cost of illness, and of the expense of taking care of the sick comes from increased hospital overhead.

"The high cost of medical care" is as inept a title for the current crisis in medical and disability economics as the traditional title of "plum pudding" for a confection entirely devoid of plums. The medical care is a mere bagetelle in comparison with other costs in times of illness. Take for example a maternity case. No other type of illness has been bruited about more at the hands of propagandists than have maternity cases. Although obstetrics nowhere in the world receive the attention given in the United States; although nowhere else is the pre-natal, in fact the entire life standard of living as refined as in the United States, even under the worst of circumstances and taken class for class, maternity practice in the United States has been held up to ridicule by the socializers of the world. There is no statistical standard of measurement, no international yardstick for values that can accurately afford proper comparative figures for national maternal mortality. Yet propagandists knowing this quite well are only too ready to roar that "the United States annually kills more mothers by neglect than any

other nation in the world." On the face of things this is false. We live better here in America than citizens of any other country. Had we fewer laws, fewer politicians and more patriotism per capita we would be better off than we are, but as it is, we are probably better off in every way than is any other nation in the world. However, with this "maternal mortality" hysteria the United States was handicapped for three years with the odious "Sheppard-Towner Maternity Bill" which did not provide a single cent's worth of food, shelter, care or clothing for any mother, but did give a whopping number of politicians pretty fat jobs. It also managed to make a lot of trouble for organized medicine and to weaken our national defenses for the advent of socialized medicine. Nor is the Sheppard-Towner bill a dead issue. Its ghost is still strolling around the halls of government, and trying its best to add a little more to the "high cost of medical care." Law and the laity would practice medicine.

Now the cost of medical care, when you get right down to it, is *the cost of the doctor for skilled medical and surgical care in illness.* Accurately analyzed this is but from five to fifty per cent of the cost of any illness. *Nobody yet has taken a slap at the high cost of the butcher, or the dairyman or the laundryman or the green grocer during illness.*

Yet, if at the doctor, why not at the business man? Or the landlord? Or the coalmen? For each and all of these entities in civilized society contributes not to *"the high cost of medical care"* but to the *"high cost of illness."*

And each and every one of them if the patient is sick in the home, *gets his bill paid before the doctor does. Even the nurse comes first!*

Now as a rule, a hospital has several main sources of expense. These do not vary whether the institution is supported by the taxpayers or by the private citizens of a community, or the medical profession, or by religious orders, or by endowment.

A hospital must meet its maintenance bills. These for an institution are the same as for a householder or any individual. Which means that the overhead includes, rent, if the property is not owned, and if it is owned, taxes, and repairs; heat, telephone and water bills, light and labor for attending to the mechanics of running the building alone. Added to this must come the support for the training of the nursing quotient—laundry, housing, food and a variable though ever minimum compensation during training and the maintenance of the staff, administrative and servile that actually labor for that section of the hospital that does hotel duty for the sick. All these costs must be met, these routine costs of living before a single penny is expended for the patient. As for the patient, there must be food for the patient, therapeutic and surgical supplies and the same upkeep that would be given were the patient out and able.

There is no more exactness in charging all these expenses to "the high cost of medical care" than there would be to charge the family butcher with the maintenance of the Normandie. These expenses are not medical care. These expenses are maintenance care of the patient, and if anybody should be grilled it is not the physician, nor the surgeon, but the very business men who make their profits from hospitals and who are trying to socialize medicine and surgeon's skill! Think it over!

Another item in the cost of illness—why equivocate and call it the "high cost of medical care?"—is the indubitable high cost of nursing attendance. The race for efficiency has brought about an over trained nursing profession, that is neither, in the bulk, a group of medical men, nor yet an acceptable assisting factor in the home of the bulk of the citizenry.

For special cases, or a very small percentage of the nation's invalids, the expert, extra-trained nurse may be a necessity. But she is not needed in the average case of measles! mumps; the normal, routine confinement of a healthy strong young mother; nor the incidental care of the senile nor the average convalesence from uncomplicated accident or attacks of illness. However, there is no choice. The average family cannot pay the wages of the registered nurse. She is a burden outside of her wage for the nurse who is over-trained has grown to be quite a lady of quality and will not share in the duties of the home nor its economies. She is an aloof individual, ranking as high as the doctor and will have no quibbling about it. Frequently her wage is the equivalent of the entire income of the wage earner, and—there you are!

This however *is* the "high cost of nursing." It is NOT the "high cost of medical care."

The foundations made their first play for control of medicine, and the socialists and com-

munists their initial movement to this end by "nursing aid associations." The part-pay or semi-endowed nurse vies today with the public health department visiting nurse. There are other subsidized attempts to solve the problems of the nursing profession by the lay public. They have not been successful. The plight of the trained and registered nurse in these years of depression has not been enviable.

Is there any likelihood that when this subsidization wreaks its havoc upon the medical profession that the results will be any more effective or any more of a panacea than they have been with the nurses? Will public health, insurance, sickness insurance or any other of the claptrap of socialization work any better than these attempts to cheat the nurse of her wage by having somebody else pay half of the patient's bill?

That is one of the fundamental differences between the United States and Europe. The United States was started by persons who wanted to stand on their own feet, to support themselves, to give themselves a chance. Europe has always been a land where a ruling class battened on the taxes and the earnings of a poor and servile class, and as a consequence had to subsidize the servile class when it became indigent. The United States was a new idea.

It is a democracy that started clean from scratch. Europe could not do that, with the best intentions in the world. The best that she can do is to put a few shining, incongruous patches on the worn out jeans, something that will smack of democracy and freedom and equal rights and equal opportunities. So out of theories and visions was plucked the idea of social and health insurance, baiting the underprivileged with the greatest prize life can offer —health.

To date the scheme hasn't worked. The goose that laid the golden egg was killed. For medicine in Europe has not maintained the world lead. The practice of medicine is a profession under a pall, and the cost to every one, from the minimized income of the doctor to the increased burden on everyone is appalling.

Writes Dr. Edward H. Ochsner in his "Social Insurance and Economic Security":

"The wage earners of Germany and Austria lose more time through sickness under Compulsory Health Insurance Laws than in the United States without such laws but it also is interesting to note that it has produced in the habits of German and Austrian workers, a tendency to become sick, to imagine they are sick or to make believe they are sick. . . . In France there has also been a great increase in the demands for hospital beds since the introduction of Compulsory Health Insurance. . . . People argue that they should not even take care of their own minor ailments when the state is willing to do it for them."

The state! The state! Where does the state get its income except from the taxes inflicted upon its citizens?

As to the backfire note this comment published in the *Journal of the American Medical Association* under date of August 31, 1935, from the Paris correspondent of that magazine, official organ of ethical medicine in the United States; and in which the scribe states:

"Paris, France, July 19, 1935.

DISCONTENTMENT OVER SOCIAL INSURANCE DEFICITS

"The social insurance law is now five years old, but from all sides come complaints that it has not proved to be the success that was expected. In attempting to balance its budget, the government has planned to save 400 million francs (about 25 million dollars) annually through economies in the administration of the law. One of the members of the chamber of deputies has asked for an emergency revision of the law because the premiums that insured workers are obliged to pay are a burden hard to bear. More than four billion fancs (about 250 million dollars) is taken 'out of the pockets of employers and employees every year and most of it is stowed away (thesaurized) in the sinking funds of the various organisms of the law,' according to this legislator. The premiums must be reduced in line with a general effort to lower the cost of living in France.

"Fnally, in the *Siècle médical* of recent date appears an article entitled, 'a decisive change,' which states that one of the chief objectives of the social insurance law, an effort to prevent disease by better sanitary organization of the country, is at last in the first stages of fulfilment. One is also much concerned about deficits in the budgets of the primary distributing agencies, or 'caisses,' of the social insur-

ance law. These collect the premiums from the employers and employees and disburse benefits for illness, maternity cases and deaths. These 'caisses primaries' insure themselves in a sort of central government agency termed the 'Union of reassurance.'

"At a recent meeting of all of these reassurance societies it was found that the 'caisses primaries' were in a bad way financially and that surely next year, if not already this year, there would be deficits.

"These 'caisses primaries' during 1930-1931 distributed only 40 per cent of their income, whereas in 1934 the proportion rose to 89.5 per cent. The average premium dropped from 70 francs ($3.75) a month in 1930-1931 to 63.7 francs in 1934, or about 10 per cent. This drop in revenue is more marked in the departments outside Paris than in the latter city. The reverse is true of the disbursements.

"Out of 103 of the 'caisses primaries' (primary collecting and distributing agencies) insuring 1,220,000 workers, thirty-nine are in deficit for sickness insurance, seventeen for maternity insurance and nineteen for death benefits. These financial difficulties will be combated n the future by the Reassurance Union lending money on more liberal and longer terms to the caisses primaries. As stated in previous letters, one of the drawbacks to the present social insurance law is the thesaurization, i. e., keeping out of circulation, vast sums of money by the central organizations which are constituted by the 'Union of Reassurance' and by the 'guaranty fund.' The former is the custodian of sickness, maternity and death insurance premiums and the latter for old age insurance premiums.

"These huge sums of money under the control of these 'higher-ups' links in the social insurance chain are not always wisely invested and there has been much open criticism of this feature of the law. The latter dates only from 1930 and it will be many years before those who are now paying for old age insurance will reach the age of 65 and demand reimbursement for sums paid in many cases over a period of from thirty to forty years. No secret is made of the criticism of the poor investments, entailing much loss of money, which have been made by the trustees of some of these funds.

"The experiment in social insurance in France has been far less successful than was hoped or promised. The attitude of the medical profession is becoming more and more bitter in these days of crisis."

PAPERS FOR SPECIAL MEETINGS AT 1936 ANNUAL MEETING

In addition to the regular scientific sections at the annual meeting to be held in Springfield next May, the Pediatricians and the Obstetricians and Gynecologists will arrange their own special programs to be presented on Tuesday Morning, May 19, the first day of the annual meeting.

Although these programs will be arranged by members of these specialties and be in charge of their own officers, all members of the Illinois State Medical Society are cordially invited to attend the meetings and participate in the deliberations.

The officers of these groups are anxious to hear from any member of the Society desiring to present papers at either of these meetings, at the earliest possible moment. According to the usual custom, members living in Cook County should get in touch with the Chicago member of the officers and the downstate physicians should contact the downstate official.

In writing to these officers the title of the paper should be given and a short abstract of the paper should be submitted to better enable those responsible for preparing the programs to select those papers which in their opinion will be of greatest interest to the membership as a whole.

The officers for these special meetings are:

Pediatricians meeting.

John R. Vonachen, Chairman, 901 Hamilton Blvd., Peoria.

Arthur H. Parmalee, Vice Chairman, 715 Lake Street, Oak Park.

Joseph K. Calvin, *Secretary,* 104 South Michigan Ave., Chicago.

Obstetricians and Gynecologists:

Wm. W. Cutter, Chairman, 405 Main Street, Peoria.

Ralph A. Reis, *Secretary,* 104 South Michigan Ave., Chicago.

Owing to the fact that these special meetings will be held on Tuesday morning only, the number of papers to be scheduled must necessarily

be limited and all members desiring to present papers on either subject should write the proper officers at an early date.

NEW SECTION ON OBSTETRICS AND GYNECOLOGY FOR THE ILLINOIS STATE MEDICAL SOCIETY

The Obstetricians and Gynecologists have been authorized to arrange a program in these specialties and to conduct a meeting for those members of The Illinois Medical Society interested in connection with the Annual Meeting of The Illinois State Medical Society. The first Annual Meeting will be held on Tuesday morning, May 19, 1936, in Springfield.

Dr. William A. Cooley, Jefferson Building, Peoria, has been selected as Chairman for this first meeting and Dr. Ralph A. Reis, 104 South Michigan Ave., Chicago, the Secretary.

These officers are anxious to arrange their program as early as possible and will appreciate having members of The Illinois State Medical Society who are interested in Obstetrics and Gynecology, and who desire to present papers before this Section, get in touch with either of them at the earliest possible moment.

It is suggested that Chicago members desiring to present papers should write to Dr. Reis and downstate members should get in touch with Dr. Cooley.

Every member of the State Medical Society who is interested in Obstetrics and Gynecology should arrange to be present at the meeting and participate in the discussions following the presentation of the several papers to be scheduled.

SICKNESS INSURANCE, STATE MEDICINE AND ALL THE ALLIED TRIBE ARE NOT A FREE WILL OFFERING FROM SOME FAIRY GODMOTHER

State medicine, health insurance, sickness insurance and all the allied tribe are paraded by their proponents as a species of golden glowing, free-will offering from some mysterious fairy godmother. The selling talk for state medicine and all its kin is that it will furnish complete and constant medical care and other illness coverage at a prize package rate equalled by nothing known previously,—not even the medicine show man of earlier decades, flowing beard, high boots, big barouche and a black quartet! What this selling talk never includes,—unless it is swathed and veiled in fine promises—is that all such medical care is going to come out of the pockets of the people themselves, both by direct contribution, and by direct and indirect taxation; and by the tremendous increase in a public or semi-public payroll of an army of politically appointed "social service workers," a profession that is popular and prolific since its fundamental job is meddling into the other fellow's private concerns; and by the actual diminution of the comparatively scant wage earning ability of a skilled, conscientious class of citizens—the medical profession.

For the social service worker this highly touted system of state medicine is the veritable manna in the wilderness. It means JOBS!

Until this "health insurance" scheme got under way the chief job and mainstay of the social worker and the inspired interferer was the lay philanthropy known as "foundation" or "endowment." In general a foundation is a belated attempt on the part of a man who has waxed wealthy on keen business principles to return to the general public from which his millions have been wrested, a certain percentage of those profits. Not in actual cash, by no means, but rather through some spectacular civic work that will keep green forever the memory of "the man who did."

A great many workers in a great many factories complain that they would rather have this money in their pay envelopes to spend as their immediate needs direct rather than in gymnasiums, clinics and other giltedged "welfare work manifestations" at the various plants. But such is not the way of foundations. To the bitter end they boss the job, rule the roost and spend the money! Foundations are beloved of social workers—for the foundations laid jobs for them. But even the foundation jobs ran low in proportion to the demand. A new source must be met with, and somebody, it may not have been the foundations, but it certainly looks like it, decided that since health is the greatest mortal need, that the health proposition would be a good thing to tackle. Better yet, doctors are notoriously poor business men, so why not just start a movement to take over the medical profession, body, boots and breeches, hospitals and homes and call it a day?

Only one of the big foundations—The Milbank Memorial Fund,—has shown any signs of pulling in its horns as to its autocracies against the medical profession. Within a few months the Milbank Fund has included the resignation of its secretary, John A. Kingsbury, and at least a partial clipping of the wings of one of its propaganda workers, I. S. Falk. The rest of the ilk keep merrily on with their certainly selfishly motivated crusade to saddle another white elephant on the American taxpayer at the expense of national health.

In *"Minnesota Medicine"* for March, 1935, *is quoted data assembled by Crownhart as to* foundation propagandism and which states among other items that:

"Three large foundations especially have been interested in sickness insurance. *These are*

"1. Milbank Memorial Fund: Established in 1905 by Elizabeth Milbank Anderson with total gifts of over $9,000.00. Mrs. Anderson was the daughter of Jeremiah Milbank, organizer and *builder of the Chicago,* Milwaukee and St. Paul railroad. She and her brother *Joseph were heirs to* the Jeremiah Milbank fortune. The Milbank Memorial Fund has always been under conservative direction closely connected with important banks, corporations and their legal advisors. Albert G. Milbank has been a member of the Board of Directors of the Borden Company and *affiliated concerns and is* now its president. Associated with him on the Board *are Thomas Cochran, a member* of the firm of J. P. Morgan Company; Frank L. Polk, another director of the Chase National Bank and one of the leading corporation attorneys of New York; and Cornelius Bliss, a director of the New York, New Haven and Hartford, the Radio Corporation of America, *the Bankers' Trust* Company, and the New York Life Insurance Co.

"Employees of the *Fund have included John A.* Kingsbury, secretary, who collaborated with Sir Arthur Newsholm in writing "Red Medicine" and who has been an outstanding propagandist for sickness insurance. I. S. Falk, a bacteriologist who was Professor of Bacteriology of the University of Chicago in 1920, Associate Director of Surveys of the Chicago Health Department, 1925-27 and an Associate Director of the Committee on Costs of Medical Care; and Edgar Sydenstriker, *who is also part time statistician for* the United States Public Health Service.

"2. *The Julius Rosenwald Fund.:* This fund was *incorporated in* 1917. In 1928-29, the Fund began to provide for 'distribution of medical service, particularly to the man of moderate means.' The assets of the Fund in 1929 amounted to $34,000,000 and the Fund itself provides that both income and principal shall be expended by 1957. Up to his death in 1932, Mr. Rosenwald served as chairman of the Board of Trustees. In 1927, E. R. Embree, a former reporter of the New York Sun who previously served as vice-president of the Rockefeller Foundation, became president of the Julius Rosenwald Fund. The Fund has given support to the Magazine Survey and has been largely interested in Negro welfare.

"The Fund employs Michael M. Davis (not a physician) as its Medical Director and C. Rufus Rorem as Davis' assistant.

"Davis was director of the Boston Dispensary from 1910 to 1920; organizer of the pay clinic for people of *moderate means in Boston in 1913; organizer of the* Cornell pay clinic in New York City in 1921 and has *been Director of* Medical Services of the Fund since 1928. He was a member of the Executive Committee of the Committee on Costs of Medical Care and a signer of its majority report.

"Rorem, Davis' assistant, was an instructor in Accounting at the University of Chicago, from 1924 to 1927 and an Associate Professor in 1929. In the years *of 1928 and 1929, he was Assistant Dean of the School* of Commerce and Administration. He is listed as an Economist and Accountant with the Committee on Costs of Medical Care during the years 1929-31. In recent years he has been "loaned" by the Fund to the American Hospital Association to promote a program of selling *hospital prepayment insurance plans.*

"3. The Twentieth Century Fund, Inc., with offices at 11 W. 42nd St., New York City. *This Fund was organized by Edward Filene of Boston for the increase* and stabilization of social well being. The funds of the organization have been furnished almost exclusively by Mr. Filene, who is president of the William Filene Sons Company of Boston. *The Fund has expended in the* neighborhood of $850,000 up to 1933 and now holds $450,000 in trust. Trustees of the Fund include Newton *D. Baker, former Secretary of War; John H. Fa*hey, Boston, ex-president of the United States Chamber of Commerce; James G. McDonald, New York City, Chairman of the Foreign Policy Association; Owen D. Young, Chairman of the Board of the General Electric Company; Dean Roscoe Pound of Harvard Law School; Henry S. Dennison of the Dennison Manufacturing Company, *Massachusetts; Henry Bliven, editor* of The New Republic and Mr. Filene. Conservative *members are in the strong majority.*

"Mr. Filene declares that he made the initial gift for the five-year study of the Committee on Costs of Medical Care.

"The Fund has also contributed to the magazine survey, but the Fund, itself, appears in general to have relied upon the efforts of individual business men and in*dustrialists rather than upon action by the government* through legislation to advance the condition of labor. None of the economic studies sponsored by the Twentieth Century Fund appear to have touched upon hours of labor or low wages. Mr. Filene, himself, has spoken at length on many occasions to advocate some form of sickness insurance."

The Columbia Broadcasting System is broadcasting each Monday evening, over sixty-one stations, discussions dealing with socialization of medicine, which are predominantly propaganda in favor of socialization. The American Association for Social Security, Inc., Abra-

ham Epstein of New York City, executive secretary, has prepared a proposed health insurance bill for introduction into 1935 state legislature, which is most pernicious."

DR. EDWARD H. OCHSNER'S "SOCIAL SECURITY" ACHIEVES THREE PRINTINGS WITHIN A YEAR

Unwonted success for a book of specialized appeal and dealing with the profound subject of social insurance, both medical and economic has been the lot of Dr. Edward H. Ochsner's book, "Social Security." Within a year it has achieved three printings.

Every once in a while a man of science hits the bull's eye of popular acclaim. On those occasions, it is difficult to discover which is the more surprised,—the man of science or the populace.

This situation has eventuated with Dr. Edward H. Ochsner, author of "Social Insurance and Economic Security." Publication of this volume about a year ago climaxed many years of successful medical practice and equally many years of careful epitomization of the economic security, first of the profession, and second of the nation, which Dr. Ochsner so ably serves.

Dr. Ochsner's book is now in its third printing. No less than 2,500 copies of the book were sold before the second edition left the press. The larger proportion of this advance sale came from the laity. An excellent sign, that. It shows that whether a prophet is or is not without honor in his own country that from the highways and by-ways, as at the Miracled Wedding Feast is granted his accolade.

Ochsner's book is a practical triumph. The November 1935 issue of the *University of Chicago Magazine* (Dr. Ochsner was a member of the class of 1894) makes in part this comment:

"The interest of Dr. Ochsner, a distinguished Chicago surgeon, in social insurance long antedates the advent of the California Utopians, the advent of the sympathetic sex in the cabinet and the writing of the pending bill for economic security. Ochsner, as a young doctor, acted as an assistant in the clinics of Berlin, Hamburg, and Leipzig, operated in connection with the social insurance scheme Bismarck gave Germany.

"Since discounting the official connection many years ago, Ochsner has kept himself informed about the methods, progress and results of social insurance by reading everything he could lay eyes upon on the subject and by frequent visits to Germany and other countries. He has moreover maintained an interest in governmental affairs and has served his state on welfare boards and commissions. With this background and experience what Dr. Ochsner has to say about social insurance merits careful consideration. . . . Proponents of social insurance and of health insurance in particular will find nothing to support their position in this work. In the experience of the countries which have experimented Ochsner finds the results have been uniformly bad. And with the governmental extravagance and inefficiency which prevails in this country, he has no confidence in better results here. But he is not alone opposed to social insurance, such as it has been, but also as such! Even if the schemes did all it was claimed for them, Ochsner would still be against them. For, he points out, they would have the inevitable effect of destroying the initiative of a great number of people in whose independent activity, progress lies. If we have social insurance, Dr. Ochsner says, it will be at the price of the defeat of progress and recovery. With Prof. Wallace, Dr. Ickes, Prexy (almost of Welleslye wasn't it?) Perkins, and other cabinet economists except Dean Dern (he'll be Dern if He does—or doesn't) turning out so many volumes, one hesitates to say an approving word about a new book on the New Deal. Nevertheless an exception should be made here. In this country, in which social experimentation has become such a fetish that we are about to adopt European schemes without more than brief consideration, is worth while asking how the schemes have worked in Europe and what would be the consequences of their adoption here. DR. OCHSNER HAS RENDERED A PUBLIC SERVICE BY ASKING THE QUESTIONS AND ANSWERING THEM FROM HIS EXPERIENCE AND STUDY."

Which is all quite true.

"Ed" Ochsner is no novice at the give and take of the systems of health insurance. Almost to a man those who have known him in more than thirty years of practice will affirm that his "word is as good as his bond." That "Ed"

would say "thumbs down" to any insurance socialistic proposition is more than enough to any one who knows Ochsner. He had been a part of Bismarck's "unemployment insurance" long before American theorists, socialists and parlor pinks, had ever heard the term, let alone set out to try to understand it, an eventuancy that has come to but few of them, even now, and even in the face of the Rooseveltian Security Act, called by Epstein, "Our Social Insecurity Act."

Gratifying as it is to the medical profession at large to realize the emphatic and practical triumph of Dr. Ochsner's book, it may not be amiss to urge upon the profession an individual reading, perusal and evaluation of the tome. The welter of misinformation, propaganda and falsehood, ever direct, even when not deliberate, as to the competencies of Social Insurance, is great. Into this mess the Ochsner book appears as a beacon light. Plain, cold facts, hard ironclad findings, are set forth with rare veracity, and good plain English with deft illumination upon this elusive yet burning issue. The deluge of doctrine and the flood of figures sent out by subsidized propagandists gets quick and apt analysis at the hands of Dr. Ochsner. An economic expert of rare distinction, he knows thoroughly how to separate chaff from wheat and how to present his winnowing in such fashion that they shine in letters of flame for laity and profession alike. His exactitude is dispassionate and mathematical as he presents facts proven by existence and experience. Having retired from the practice of medicine, Ochsner has at stake nothing but what is right and his devotion to human needs. His passion for justice is augmented by a quality that for lack of better wording might well be called social and economic competence—a gift of the gods that is inherent rather than acquired. Quoting directly "The reason why the wrong is so often victorious over the right is because only too often wrong is championed by someone or by a group that expect to make capital of it; while the right, which affects society as a whole, usually has no champion or champions who are personally, individually, or collectively, affected more than is society in general."

"My first direct personal contact with the problem of Social Insurance occurred in the fall of 1896 as assistant in an ambulatory 'Krankenkasse' nose and throat clinic in Leipsic. The clinic was under the direct personal supervision of a 'Private Docent' of the university, a man in the forties with excellent training, high ideals, and fine personality, and yet I can truthfully say that the services rendered to the patients were mediocre, about the type of services usually rendered in the city and college dispensaries of this country. The treatments were mostly simply palliative, rarely curatives, and no time was spent in personal hygiene and preventive medicine for the simple reason that the time was so taken up with trivialities that there was no time left for the more important problems. It was my privilege to become fairly well acquainted with the head of the clinic and one day about 2:30 P. M., after we had all worked without interruption since 9:00 A. M., the head physician said to me—"Now I am going home to my private office so that I can supplement my meagre income from the 'Krankenkasse' with a little private practice income so that I can support my wife and baby decently." I had the privilege of entering his home, a modest second story apartment of seven rooms. One room, which was used as his consultation-room and the sitting-room, had the double function of family sitting-room and reception-room for patients. From Leipsic I went to Hamburg to serve as externe in the Neue Allgemenie Krankenkasse located in the suburb of Eppendorf, a cottage hospital at that time of some fifteen hundred beds. It is here that I had my second direct contact with Social Insurance. I had been there only a few days when one morning I made rounds with the head-surgeon of the hospital, Professor Kuemmel. We went to one of the pavilions for third-class male patients where Professor Kuemmel spent considerable time examining several patients. As we stepped out of the pavilion, Professor Kuemmel turned to me, the only American in the group, and with a good deal of emphasis and some heat said about the following: 'I have to waste one-quarter of my time ferreting out malingerers.' While there was probably some exaggeration in the statement I soon found out by further personal observation that there was much truth in what he said. My third personal experience was in the winter of 1904 and

1905 in the ambulatory 'Krankenkasse' clinic of Professor Schleich in Berlin.

"These three experiences, gave me an insight into the practical workings of Compulsory Health Insurance as no purely theoretical knowledge could have given me. In addition to the foregoing personal experience, I have kept in touch with the problem, reading and studying a fair number of the outstanding publications which have appeared from time to time on the subject. One more point has, I believe, an important bearing on this subject. During the first eighteen months which I spent on the continent of Europe in post-graduate study, I lived seven months in Vienna, two months in Leipsic, six months in Hamburg, and one month in Stockholm, I never slept one night in a hotel. Being able to speak the languages in these countries, I found lodging with middle-class families in the better portions of the city immediately on my arrival. I did this purposely in order to become better acquainted with their modes of life and their mental attitudes to many of the social, religious, and economic problems which confronted them. In this way I gained much interesting and valuable information on many subjects including Social Insurance and the story I obtained behind the scenes, so to speak, was a very different one from the one usually passed over the bright foot-lights by the well-paid laymen and quasi-professional men in high official positions who are intrusted with the management of the system."

Dr. Ochsner's book was revised for the second printing and the name changed from "Social Insurance" to "Social Security." The book may be secured from The Social Security Press, 538 South Wells St., Chicago, Illinois, and the price has been reduced from $2.50 to fifty cents.

MEDICINE THE GREAT HUMAN ART VS. MEDICINE THE INEXACT HUMAN SCIENCE

Big business with its ideas of "cent per cent," and mechanical efficiency has failed to grasp the fact that human understanding and applied psychology complement technical scientific knowledge of the body, its composition and its functions in the successful practice of medicine and in the equipment of the competent medical practitioner.

This unit of medical equipment is commonly referred to as the "art of medicine." It should not be confused with the colloquial phrase descriptive of the flattering, whimsy-humouring, "good bedside manner" of the shekel coining "society physician," though it must be confessed that in some extreme cases simply that and nothing more brings many a neurotic patient out of the boudoir and into the parlor. But the *knack of the art of medicine* is a *sine qua non* in any medical pharmocopeia. The lack of it is productive of some of the greatest evils emanating from panel practice, an atmosphere wherein bare science may feebly struggle for existence and falter in trying to "hold the ship," but wherein there is no place for the equality indispensable "Art of Medicine."

Any conscientious physician is the first to admit that in the healing of suffering humanity, science itself is not enough. "Man can not live by bread alone," says Holy Writ. Nor can medicine prosper in the walks of service with complete elimination of everything except the exactly scientific.

One of the finer functions of the art of medicine lies on the physician's ability to adjust the idiosyncrasies of the patient, both mental and corporeal, to the indicated treatment, and to gain the patient's confidence and trust so that this can come about. Without this adjusement, efficiency, even though scientifically exact, will fall by the wayside.

The present trend towards regimentation, standardization and general mechanization is all against the art of medicine. Efficiency experts are out to make of the human race what God Himself did not do anywhere in creation,—to make all things equal. Seldom are two trees, let alone an orchard or a forest, of uniform height, breadth, density or compactness of foliage; and even the proverbial "two peas in a pod" lack this quality of exact duplication. Perhaps these efficiency experts will manage to improve on God Almighty and get everything "redded up" and aligned like type in a newspaper column. If they do then the art of medicine will be not only outlawed but superfluous. Up until then however the efficient medical profession in so much as this is allowed by law, will continue the liberal,

the sagacious and the expert application of the art of medicine let the regimenters fall where they will.

THE GOVERNMENT IS ATTEMPTING TO REGULATE AND CONTROL EVERYTHING

As we see the situation, the Federal Government is striving to control the private lives of individuals, the conditions under which the individuals must live and function, regulating the personal habits of individuals; control of the schools of the country to rock the cradles (if the birth controls permit babies to be born) to nationalize medicine, dentistry and pharmacy, labor, education, railroads, farming, stock yards and finally there will be an attempt to control religion. In order to save the country from an establishment of dictatorship let us get back to the constitution at the earliest possible moment.

BACK NUMBERS OF THE JOURNAL WANTED

We have several requests from libraries and individuals for the December, 1934, issue of the JOURNAL. Unused or unwanted copies of this number will be much appreciated.

Illinois Medical Journal, 6221 Kenmore Avenue, Chicago.

INFANT MORTALITY IN NEW YORK A HUNDRED YEARS AGO

It has been generally assumed that the infant mortality rates must have been exceedingly high a hundred years ago and that a fairly continuous reduction has taken place since that time. Bolduan and Weiner[1] have recently attempted to determine the accuracy of that assumption when applied to New York City. The statistical data of that time are admittedly inaccurate and incomplete, but by the use of the so-called city inspectors' reports compiled regularly from the interment records of the various cemeteries it was found possible to approximate the number of infant deaths. Evidence exists also for believing that the birth rate at the time was about 40 per thousand. It was therefore possible to postulate statistics carrying a reasonable accuracy. A chart constructed from these statistics and extended by the more accurate recording of later years brings out the fact that from a relatively low infant mortality rate at the beginning of the nineteenth century the rate rose to a maximum during the sixties and that it thereafter declined. The evidence therefore indicates that in New York City the infant mortality rate at the beginning of the nineteenth century was probably no higher than it was at the opening of the present century. The factors affecting the rate were, of course, quite different at that time than at present.—J. A. M. A.

1. Bolduan, Charles, and Weiner, Louis: Infant Mortality in New York City One Hundred Years Ago. J. Pediat. 7: 55 (July) 1935.

AN OVERSIGHT

"Boy, I'm scared! I just got a letter from a man telling me he'd shoot me if I didn't stay away from his wife."

"Well, all you have to do is stay away."

"Yeah, but he didn't sign his name."—*The Stoic.*

MAGNA CHARTA

Magna Charta was a soldier in the Revolutionary War, who was seriously wounded. His wife, hearing of the incident, immediately went to him, picked up his gun, took his place in the battle, and said, "Shoot if you must this old gray head, but I will fight it out on this line if it takes all summer."

The traditional attitude of the medical profession against advertising and the opposition to any personal glorification has been a force for good and productive of keeping a decent dignity within the medical ranks, not deemed necessary in other callings. However, this habit of mind and usage has tended to keep the doctors too silent and has resulted in the lay public forming a dim and hazy idea of medical thought, its aims and ideals. This lack of understanding is in large measure responsible for the attitude of many of those who embrace strange and mysterious methods of healing and those who do not feel in sympathy with what they consider to be the real purposes of the doctors as a class.—*Bulletin, Pierce County Medical Society.*

There is no claim of perfection on the part of the profession for the present scheme of medical practice. Change is inevitable. Medicine has always adapted itself to the social and economic order in which it finds itself. This it can continue to do only if freed of politicalized regulation and control. There is no opposition on the part of the profession to the proper study and trial of experimental plans for medical care in changed form. But medicine will vigorously defend its personal rights which are ignored by lay workers who have nothing better to offer than state medicine. —*The Journal of the Arkansas Medical Society.*

It is axiomatic that nothing received for nothing is worth nothing. . . . But on the other hand, there has been no time in the history of the country when true charity is more needed in medical work, as a patriotic and humanitarian obligation, than the present. It must be administered with care and thoughtfulness, with tact, and with a strict sense of its objective—helping others to help themselves—or a medical paternalistic empire will be created that eventually will undermine the finest things in medicine and react with untold losses to everybody concerned.—*Jackson County Medical Journal, Kansas City, Mo.*

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

C. G. Farnum, M. D.
R. K. Packard, M. D.
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I. H. Neece, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.

Address all letters and communications to the Chairman.

MEDICAL ECONOMICS COLUMN FOR JANUARY

The annual meeting of the Northwest Medical Conference will be held at the Palmer House in Chicago on Sunday, February 16, 1936. This is the first time that this meeting has been held outside of Minneapolis and St. Paul. From a small beginning, it has grown until it is now the outstanding meeting of the country, where the discussion is limited to subjects of importance in the field of Medical Economics. Last year representatives from 16 different States were present and this year we hope for an even larger attendance. That was one of the reasons for bringing this meeting to Chicago at this time. From the interest shown so far there is no doubt about a most interesting and instructive meeting. The program as arranged takes the nature of a symposium on several of the outstanding subjects of Medical Economics. The meeting is strictly a one-day affair, beginning with a breakfast and general get-together at 8:30 A. M. in the Red Lacquer Room, where all of the meetings are to be held.

Subjects to be presented are as follows:

1. The Social Security Act and its relation to the Medical Profession.
2. Reciprocal Relations between the State Medical Societies of the Midwest.
3. Interprofessional Relations within the County.
4. Standardization of the Activities of the Committees on Medical Economics in Nearby States. All of these papers will be limited to twenty minutes and followed by ten minute discussion by two prominent men, previously selected. Then the subject will be thrown open to general discussion. Luncheon will be held at 12:30 P. M. in the same room.

The Council of the Illinois State Medical Society and the Committee on Medical Economics feel that this is a great opportunity for the men of Chicago and Illinois, who are interested in this subject to attend a meeting of this group. They are all truly interested in this subject and the papers and discussion are most stimulating to all present. The programs will soon be printed and sent to all those who have attended the previous meetings of the conference. In addition, programs will be sent to those men, known to be interested in this subject. If by some oversight you fail to receive a copy, kindly write to the Chairman of this Committee, who is the Secretary of the Conference this year and he will be glad to send you one. Certainly the Presidents and Secretaries of the County Societies in Northern Illinois should all make a special effort to attend.

The list of speakers who are willing to cooperate in making talks to the laity is now in the hands of the Secretary of the Committee on Education of the Illinois State Medical Society, Miss McArthur and she should be able to furnish speakers for talks to any lay group on sufficient notice. This is and should be one of the main methods of presenting the medical side of the question of State Medicine. We hope that every physician in the state will lend his influence to have speakers from the medical profession selected to make talks before every civic club in his city, chiefly the Lions, Rotary, Kiwanis, Women's Clubs, Parent-Teacher Associations and similar organizations. We have found all of them most attentive and interested audiences with an open mind on this subject, eager for authentic information.

The President-Elect, R. L. Green, M.D., of Peoria, presents an article directly following this. The subject: "Stop-Look-and-Listen—Danger Ahead," should rouse your interest. It is an excellent article and we hope that all of you will take time to read the same. We feel sure that most of you will do some real thinking, when you finish reading it.

We hope that all of you either heard the

Radio Debate on *State Medicine* on November 12 or have read the same in the November BULLETIN of the A. M. A. Many fine facts were presented and all thinking medical men should be able to present similar information whenever the opportunity is offered. It will only take a few minutes to read over the entire article.

E. S. Hamilton,
Chairman of the Committee on Medical Economics

STOP-LOOK-AND-LISTEN—DANGER AHEAD

You always pay attention to this sign when you drive down the road. Now is this time to pay attention to signs on the medical road. There is a bad curve to the left, and a stop. The extension of the highway, and the course will be influenced by you.

We kept the Sheppard-Towner Act out of Illinois by hard work. It will be just as hard this time and many different battles to fight on enabling act to match dollars with government on the several projects in the social security act. This act is full of dynamite for the medical profession.

The generals of the army plan, direct, and set examples, but the fight must be carried on by the soldiers. There must not be any laggards or deserters. When word comes out of Dr. Neal's office to bear down on some political opponent —do it. Just because he belongs to your party, your church, your lodge, or has given a job to your relative does not excuse you. This is a fight to a finish.

Your officers have been carrying on the battle of "State Medicine" for many years. Under the leadership of our able editor we have had occasion to fight some big men; winning by being united.

Some young men say "all right, let it come—we will all have a job." The attorneys thought that. Who settles the industrial cases? Not lawyers, but adjusters. Same in industrial medical work. It has been proven by examination on entry and check-up on hazard, a few men can care for several thousand.

How do you know the man on the throne will pick YOU to carry out the dictates?

Mental cases have gone institutional—a few men caring for thousands. The tuberculous, same way. Contagion in some cities is institutional. Cancer is proposed. Old age is in line; pension will lead to institutional care in ten years. Mother, dear mother, you must know when the sign is right in Zodiac. Nurse will inform you. When sign is right, and child arrives, with good public health instruction, the mother will know as much as the pediatrician.

The hospital will be subsidized so the surgeon may be on a salary. The cripple and handicaps will have special nurse to follow up the clinic of orthopedics. What s left for you, Doctor?

Drs. Skaggs and Camp covered nearly all the counties on economics last year, this year Dr. Reed has added his vocabulary to bring you each and every one a clear view.

The A. M. A. had a special meeting which was an expense in time and money. Also have had from one to three men at Washington to do everything possible to stem the tide the past year.

Now, you each and everyone, must say to your man in the legislature: Listen to us, for it is up to states to qualify under the act.

If this comes to pass do not blame your officers. The headquarters have worked hard and your state officers have been in the battle more than fifteen years. The press have accused them of prejudice for personal gain.

The truth about it is nearly every man in A. M. A. house could sign off tomorrow from practice of medicine. They spend their time and money in this fight for the love of the profession.

Dr. Cabot, at Quincy, said people do not care for a choice of physician; citing the group he is connected with.

First place, patients go to this group same reason they consult some particular man individually. Reputation which usually has been checked by a friend in whom they have confidence.

Their confidence in the men of this group of hand-picked, carefully packed, specially labeled doctors, is not as great as in years past. Yet in last analysis some one man gives the answer. The heads are result of careful selection. Not political appointees.

Political appointees are not easy to remove. But you can look around and find men who

have left this group for one reason or another at your elbow.

The soul of the profession is at stake. You may be the chosen one this week, this month, or this year. When the machine is organized it will not require so many men to operate. You may then be dropped.

What shall it profit a man to gain the whole world and lose his own soul? Ministers of several denominations have used this text. It would be a fitting one for the medical profession to take home for a quiet evening at home.

R. L. Green, M. D.
President-Elect, Illinois State Medical Society.

Correspondence

WHEN WE STAND ON OUR OWN FEET AND DEVELOP OUR OWN PHILOSOPHIES AND RESOURCES WE ARE MAKING OUTSTANDING CONTRIBUTIONS TO THE IMPROVEMENT OF THE WORLD

Springfield, Illinois
December 30, 1935

To the Editor:

The position of organized medicine is clear and unmistakable. It favors Americanism first, last and forever. Socialized medicine as well as the multiplicity of other socialistic schemes are European in concept and foreign to our ideals. Our forebears left Europe because they didn't like European methods of government. They founded this nation along new lines to escape the ways of Europe. Two things illustrate what we get when we imitate and follow Europe. These are the World War aftermath and the lowly English sparrow.

What the War did for us everybody knows. The English sparrow was introduced into this country in 1850 by one Pike on the beautiful theory that this bird would devour all ornamental tree insects and thus be a universal blessing. Instead, the sparow stoutly refused to feed on insects but attacked the grain fields and is now a monumental and expensive pest.

Four things illustrate what the character of Americanism is. These are the republican form of government, the lowly spud, corn, and tomatoes. These things America gave to the world.

In other words, when we stand on our own feet and develop our own philsophies and resources we make outstanding contributions to the improvement of the world. When we copy after and follow Europe we are left with bad debts and get a pest for our pains.

Calm judgment, clear thinking and organized vigorous effort are needed to keep alive the American principles and American traditions in this country. It is the special task of physicians to steer true the course of legislative acts and of social practice in respect to medical matters. Your legislative committee can function successfully in these matters only to the extent of support given by every doctor and every society. Let concerted action and constant alertness be the watchword.

J. R. Neal, M. D.
Chairman, Legislative Committee.

TRENDS IN MEDICAL LEGISLATION

Dear Doctor:

Legislative bills, enacted or offered for passage recently in Illinois, other states and the National Congress, show a curious trend of thought with respect to medicine. They indicate a strange desire to exact higher qualifications of practitioners (medical and cult), on the one hand and to favor the cults by liberalizing the license laws on the other. They seek to collect more revenue from medical practitioners and at the same time disturb the economic system by socializing practice. They attempt to extend a greater degree of medical care to more people and at the same time to regiment practitioners in a way that greatly curtails their freedom and usefulness as physicians. The bills reflect a status of popular opinion concerning medicine quite similar to that expressed on economics by the Townsend old age pension plan. Everything is wanted without regard to the basic principles which underlie good professional service in the one and sound economics in the other.

While many of the bills failed, they express an undercurrent of thought strong enough to manifest itself in legislative proposals. Iowa, for example, passed a basic science law applicable to candidates for licenses in any of the healing arts but similar bills were killed in seven other states. At the same time, two states, Iowa and New Jersey, enacted laws requiring higher educational qualifications of osteopaths, while in ten states bills increasing the qualifications of chiro-

practors were offered, becoming a law in Maine. On the other hand, attempts were made to broaden the scope of osteopathic and chiropractic practice in eight and seven states, respectively. Bills permitting any practitioner of the healing art recognized by state licensure to practice in tax supported hospitals were offered in nine states and became law (relative to certain institutions) in Indiana, Kansas and North Carolina. Bills were introduced in behalf of numerous other cults such as naturopaths, sanipractic and practitioners of electrolysis, magnetic healing, physiotherapy, physiomedicine, occupational therapy, drugless therapeutics, natural therapy, prayer and spiritual means, etc.

Bills authorizing non-profit corporations to operate hospital insurance schemes were offered in eight states and enacted in four, Alabama, California, Illinois and Maryland. A defeated Illinois bill proposed to permit corporations to practice medicine.

The National Congress enacted the Social Security Bill which authorizes appropriations for the treatment and hospital care of physically handicapped children, for the promotion of maternal and infant hygiene and for the expansion of public health service. All programs under these schemes must be approved at Washington.

Nine states considered bills making easier the revocation of medical licenses and in four states the bills passed. Laws which levy occupational tax on practitioners of the healing art were enacted in four states (defeated in two) while bills granting liens to practitioners for services rendered in accident cases failed in twelve states (passed in North Carolina).

No bill relating directly to medical practice has been offered in the Special Session of the Illinois General Assembly. S. B. 40, however, would enable plaintiffs in personal injury and property damage cases to sue the alleged perpetrator and his insurer (if any) *jointly* to recover damages. Passage of this bill, which we are actively opposing, would very probably result in the frequent granting of judgments against insurance companies on the basis of sentiment rather than merit of the cases involved. Premiums for indemnity coverage would mount if the bill should become a law.

The old age pension scheme, allowing maximum of $30 monthly to needy persons over 65 years with provisions for state and federal participation to be administered through county welfare boards, has been passed by the General Assembly. This is the most important piece of legislation enacted at the Special Session.

H. B. 54, Motor Vehicle Drivers' License, is still on second reading in the House. Has not been called for vote.

This brief review of the 1935 legislative record shows clearly that medical matters are in a state of flux in the popular mind. People have been impressed with the idea that more "doctoring" will solve most of their health problems. They are willing to believe that medical care costs too much. Their sympathies lean toward the cults but they are not yet willing to let down the licensure bars. They are being taught that the medical profession is holding out on the public.

Under these circumstances the course imperative for organized medicine to pursue must be plain to every thinking physician. United, organized effort must be employed to maintain the standard of medical practice, freedom of action, opposition to corporation and government practice and the utmost respect on the part of physicians for the highest ethics and integrity in practice.

Organized, intelligent effort toward public education on the one hand and concerning legislation on the other, has been singularly successful in Illinois. The situation in this state and in the nation generally requires the same prescription in the future. The future of medicine, which has by no means been determined, will be very largely what the organized medical profession makes of it. By aggressive interest in educational and legislative matters they can mould the system or they can sit idly on the side lines while uplifters shape the course of medical practice.

As it stands the National Social Security Act has not engulfed medical practice. It *does set up in Washington the most powerful political agency ever organized in this country which ultimately will have command over billions of dollars and thousands of employes* through funds collected for unemployment and old age pensions and various services. This concentration of power will set the *stage for a Huey Long to establish rigid fascism in this country.*

Let this trend of events inspire a New Year's resolution of steadfast devotion to Americanism with a full measure of individual freedom not to

physicians alone but to all citizens of this country.

The Legislature will reconvene January 7, 1936, but an early final adjournment is expected.

John R. Neal, M. D.
Chairman, Legislative Committee.

REPORT OF EDUCATIONAL COMMITTEE

November and December, 1935

"SOCIALIZED MEDICINE"

During the past two months the Committee has concentrated on the preparation and distribution of material on the most popular subject of the day, "The Socialization of Medicine."

Requests have come in from many sections of the state and even from Ohio, Nebraska, Michigan. All available material has been sent, including the material prepared by the American Medical Association, that compiled by Dr. E. P. Coleman and his Committee, and some special articles prepared by the Kansas and Minnesota State Medical Societies, and reprints of Dr. Charles B. Reed's article on The Social Security Act.

The Committee could make good use of a compilation of material prepared by the doctors of Illinois which might bear more weight than any other we could send out because it would represent local opinion.

Two hundred copies each of the following articles were mimeographed to send out to debaters, and doctors who were securing material for their local debating teams and for their own personal use:

"The Middleman," "Insurance," "Where Do We Go from Here and Why," "Government's Place in Health," "Our Medical Destination," "The Child and the Family Doctor," "Special Summary of the Social Security Act," "Symposium on Socialized Medicine by the Kansas State Medical Society," "State Medicine by the Minnesota State Medical Society."

Whenever possible the Committee has suggested that clubs have programs on the Social Security Act. It has been possible to arrange for a number of such programs before some very important groups and the Committee has felt the importance of presenting the medical viewpoint before the public's mind is made up concerning this subject.

Copies of Dr. Reed's article "The Social Security Act and the Doctors" was sent to 132 libraries of the state, all A. M. A. Delegates, all Illinois Legislators, the Health Chairmen of all Parent Teacher Associations, the Presidents of clubs belonging to the Illinois Federation of Women's Clubs, and the Public Health Chairmen of the Federation.

The Committee is planning to send a letter to high school principals of Illinois asking if they are to debate the subject of health insurance, if so, the date. This information will then be sent to the doctors in the communities together with material which they may supply the debaters. It is thought that the personal contact between the local doctors and the students is going to bring about the desired results.

SPEAKERS

Eighty-four—Programs were arranged for lay groups during the two months. Practically every type of lay organization was included, and the range of subjects covered those relating to the baby on through old age, physical and mental. The programs were about equally divided between Cook County and down state.

RADIO

Fifty—Programs were given over the air by members of the Illinois State Medical Society. The Committee was granted the privilege of using WBBM, WLS, WENR in addition to the regular time given over WGN, WJJD and WAAF.

The Committee has been asked to schedule a ten minute program every other Tuesday over WBBM, which means that the Medical Society has access to four excellent Chicago stations.

SCIENTIFIC SERVICE

The new list of suggested speakers and subjects for scientific meetings was compiled, printed and sent to all secretaries of medical societies.

Letters were sent to the county societies announcing that the Scientific Service Committee would be able to arrange clinical programs on obstetrics, heart disease, orthopedics, pediatrics or other subjects which might be of local interest.

35—Scientific programs were arranged for county societies.

2—Heart Clinics were sponsored.

SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

130—Postal card notices for Randolph County Medical Society.

296—Postal card notices for La Salle County Medical Society.

225—Announcements of Perry County Medical society meeting.

164—Announcements of Bureau County Medical Society meeting.

150—Invitations to physicians re Perry County January meeting.

Newspaper publicity for Medical Meetings:

20—Newspapers sent story of Randolph County meeting.

8—Newspapers sent story of La Salle County meeting.

50—Newspapers sent story of Perry County Heart Clinic.

57—Newspapers sent story of Fulton County meeting.

Letters were sent to the Presidents and Secretaries of all County Medical Societies telling them of the new Baby Book available through the State Department of Public Health.

Newspaper service to Chicago Medical Society:

18—Releases to metropolitan papers announcing meetings of the Central Branch of Chicago Medical Society.
4—Notices for Douglas Park November meeting.
10—Notices for 2 meetings of Calumet Branch.
12—Notices for 3 North Shore Branch meetings.
8—Notices of 2 Northwest Branch meetings.
15—Notices of 3 Englewood Branch meetings.
5—Releases to Branch Bulletins.

PRESS SERVICE

40—Health articles were sent on the monthly service to papers.
841—Releases to be used as the Health Column in downstate papers.
195—Releases to be used as the Health Column in Chicago papers.
16—Articles to the Blackhawk Park Nursery School of Chicago.
16—Articles to Chicago Red Cross and Central Y. W. C. A.

1108

LIBRARIES

1,255—Health articles and Dr. Reed's reprint on "The Social Security Act and the Doctors" were sent to 132 libraries in Illinois.

MISCELLANEOUS

A number of the special societies of the Chicago Medical Society have been most generous in cooperating with the Educational Committee by supplying excellent articles for use in the Health Column sponsored by the Committee in many Illinois newspapers. The Chicago Pediatric Society, the Chicago Orthopedic Society and the Chicago Society of Allergy have been particularly helpful.

The following articles were written by physicians and sent to the Committee for editing and release:

Whooping Cough
Smallpox Vaccination
Congenital Dislocation of the Hip
Thumb Sucking
Typhoid Fever in Children
Diarrhea of Infancy
Sinus Infection
Growing Pains
Maternal Nursing
Earache
Typhoid Fever
Tetanus
Diabetes
Thyroid
Chickenpox
Heart Disease in Childhood
The Schick Test
Measles
Rheumatism in Childhood
Tuberculosis
The Thymus

It might be well to mention a meeting which was held in Chicago in December, sponsored by the Child Hygiene and Summer Round-Up Chairmen of the Illinois Congress of Parents and Teachers. This meeting was for the purpose of introducing representatives of the Illinois State Medical Society and the Dental Society to the health chairmen of the Congress. Doctors R. R. Ferguson and Charles B. Reed represented the Medical Society. This is the first time that such a meeting has been called for by the Parent Teacher Associations.

Respectfully submitted,
Jean McArthur, Secretary.

THE AMERICAN COLLEGE OF PHYSICIANS

Detroit, March 2-6, 1936

The Twentieth Annual Session of the American College of Physicians will be held in Detroit with headquarters at the Book-Cadillac Hotel, March 2-6, 1936.

Dr. James Alex. Miller, of New York City, is President of the College, and has arranged a program of general scientific sessions of great interest to those engaged in the practice of Internal Medicine and associated specialities. Dr. Charles G. Jennings, of Detroit, is the General Chairman of the Session, and is is in charge of the program of clinics and demonstrations in the hospitals, medical schools and other Detroit institutions. Dr. James D. Bruce, Vice President in charge of University Relations, University of Michigan, is Vice Chairman of the Committee on Arrangements, and has in charge the preparation of an all-day program to be conducted at the University of Michigan on Wednesday, March 4. Dr. Walter B. Cannon, Professor of Physiology at Harvard University Medical School, will deliver the annual Convocation Oration on "The Role of Emotion in Disease." Dr. Miller's presidential address will be on "The Changing Order in Medicine." About fifty eminent authorities will present papers at the general scientific sessions, while clinics and demonstrations will be conducted at the Harper, Receiving, Ford, Grace, Herman Kiefer and Children's Hospitals, of Detroit.

ACCIDENTS IN THE HOME ARE ON THE INCREASE

According to Mr. Glossinger during the year 1934 there were 101,000 persons in the United States who met death by accident. However, an additional 370,000 were permanently disabled and 9,821,000 temporarily disabled. Accidents in the home far exceeded accidents on the highways in the number of injured as may be seen from the following figures: On the highways—permanently disabled 100,000, injured—another million; in the home—150,000 permanent disabilities and nearly five million others injured. Furthermore, accidents in the home continue to increase year by year while motor mishaps, largely through public education, are gradually being brought under control. The total cost of accidents during 1934 is

estimated at $3,500,000,000, which is more than the sum spent annually by the people of the United States for medical care in all its phases.

CHANGE OF NAME FOR THE RADIOLOGICAL REVIEW

The Radiological Review and Chicago Medical Recorder, published at Quincy, Illinois, since 1924, will change its name beginning in January and become the Radiologic Review and Mississippi Valley Medical Journal, the official publication of the recently formed Mississippi Valley Medical Society. The editorial policies will be the same as the old Radiological Review with the addition of the publication of the papers read before the Mississippi Valley Medical Society. Dr. Harold Swanberg, the Secretary-Treasurer of the Mississippi Valley Medical Society and Editor of the old Journal, will remain as editor. The Editorial Board of the Radiologic Review will be supplemented by an Editorial Board from the membership of the *Mississippi Valley Medical Society comprising the following*:

Isaac A. Abt, M.D., Chicago, Ill.; Karl A. Meyer, M.D., Chicago, Ill.; M. Pinson Neal, M.D., Columbia, Mo.; Quitman U. Newell, M.D., St. Louis, Mo.; F. Garm Norbury, M.D., Jacksonville, Ill.; Walter Stevenson, M.D., Quincy, Ill.; Dan G. Stine, M.D., Columbia, Mo.; Meyer Wiener, M.D., St. Louis, Mo.

The new publication will be published by the Radiologic Review Publishing Company, at Quincy, Illinois.

SPEECH CORRECTION

The American Speech Correction Association is holding its annual convention at the Stevens Hotel, Chicago, December 31, 1935 to January 2, 1936 inclusive. The present officers of the association are:

President—Dr. Lee Edward Travis, Professor of Speech Pathology, University of Iowa, Iowa City, Iowa.

Vice-President—Dr. Meyer Solomon, Associate in Nervous and Mental Diseases, Northwestern University Medical Schol, Chicago.

Permanent Secretary—Samuel D. Robbins, Instructor in Speech Pathology, Emmerson College, Boston, Mass.

Treasurer—Bryng Bryngelson, Director Speech Clinic, University of Minnesota, Minneapolis, Minn.

The American Speech Correction Association consists of students of speech disorders connected for the most part with the various universities in this country. It is the official body which contains most of the scientific students of disorders of speech in the United States. Its members are devoted to research in this field, and the organization is doing its utmost to raise the standards of requirements and ethics in this field to as high a level as possible.

EXAMINATION IN OPHTHALMOLOGY

American Board of Ophthalmology, Room 1417, 122 South Michigan Ave., Chicago. 1936 Examinations, Kansas City, May 11th, (*at time of meeting of A. M. A.*) and New York City, in October (*at time of meeting of American Academy*). All applications and case reports must be filed at least sixty days before date of examination.

For information, syllabuses and application forms please write at once to Dr. Thomas D. Allen, Assistant Secretary, 122 South Michigan Ave., Chicago, Ill.

Miscellany

TREATMENT OF DIABETES WITH INSULIN (AFTER TEN YEARS): CONTRASTING EFFECTS OF NORMAL AND OF OLDER DIABETIC DIETS

H. Rawle Geyelin, New York (*Journal A. M. A.*, April 6, 1935), summarizes the results of treatment in a group of 150 cases of diabetes treated with insulin and a high carbohydrate diet during the past ten years. Patients treated with high carbohydrate-low fat diets achieve greater effectiveness of insulin as judged by the ratio of units of insulin to grams of carbohydrate oxidized. The administration of such diets overcomes hypercholesterinemia. In the majority of instances, blood sugar levels are reduced after the administration of high carbohydrate diets. Hyperinsulinism is less common and less severe. Complicating conditions such as tuberculosis, gangrene and cardiovascular disease are less common when patients are being treated with the high carbohydrate diet (normal calories). After ten years of application of the high carbohydrate diet, the majority of patients show no loss of food tolerance or any other demonstrable retrogression of the diabetes.

STREPTOCOCCIC INFECTION SIMULATING RINGWORM OF HANDS AND FEET

According to James H. Mitchell, Chicago (*Journal A. M. A.*, April 6, 1935), there is a marked tendency to regard all acrodermatoses as ringworm of the extremities. There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis. He agrees with Sabouraud, Macleod, Walker and Roxburgh that impetigo (Tilbury Fox) is due to the streptococcus; this fact can be proved with ease. A group of five cases of streptococcic infections (impetigo) of the extremities simulated mycotic infection sufficiently to lead to errors in diagnosis. The infections were found to yield within one week to baths of corrosive mercuric chloride and weak ammoniated mercury ointment.

BLOOD PRESSURE AND PSYCHOSES

Many patients suffering from high blood pressure cannot give up their work, though frequently they are acutely conscious of diminishing power of concentration and of loss of memory. Too often these patients have no interests outside their work and, when induced or compelled to retire, their depression deepens and a definite psychosis ensues. The patient with chronic hypotension is different. Lack of exercise renders him obese and flabby; he becomes lethargic, introspective and often hypochondriacal.—Dr. C. W. J. Brasher, in *Practitioner* (Lond.), Dec. 1932.

Original Articles

PREVENTIVE MEDICINE IN THE MEDICAL CURRICULUM

An Historical Perspective

D. J. DAVIS, M. D.
Dean, University of Illinois, College of Medicine,
CHICAGO

In the evolution and development of the medical curriculum the following sequence in general is noted. First there is the discovery of medical facts. Then follows a period of application and testing by one or many persons, usually practitioners of medicine. Sooner or later, varying according to the nature of the discovery, occurs the dissemination of the theories and practice through education; and as a part of this stage the insertion of the subject into the medical curriculum. Usually the lag from the first step to the last amounts to a number of years.

Dr. John Morgan in the year 1765 in Philadelphia formulated and announced the first medical curriculum in the United States in a discourse on the occasion of the Commencement of the first medical college in this country, now the University of Pennsylvania. In this discourse not one word was said specifically about public health or preventive medicine. Dr. Morgan had recently graduated in medicine from Edinburgh, then the great medical center of Europe. He says he wrote much of this justly celebrated discourse in Paris while spending five years in Europe "engaged in fitting himself for more extensive usefulness in his profession." The curriculum which he presented on that occasion no doubt expressed the most advanced medical thought of his day.

A few years later the great name of Benjamin Rush came into the foreground in medical education. He continued as the dominant figure during the period of the American Revolution and for the following thirty years. In 1793 and succeeding years appeared the disastrous yellow fever epidemic in Philadelphia to which Rush devoted his best efforts. As a result he gave us a clinical description of this disease which remains a classic to this day. As to its etiology, he says it was produced by "exhalations." He states "The origin of this fever was discovered to me at the same time from the account which Dr. Foulke gave me of a quantity of damaged coffee which had been thrown upon Mr. Ball's wharf . . . and which had putrified there to the great annoyance of the whole neighborhood. After this consultation I was able to trace all the cases of fever which I mentioned to this source."[1] Again speaking of the 1796 epidemic, he says it was produced by the "exhalations of putrid meat which had been carelessly thrown upon a wharf."

These are the statements of the greatest epidemiologist and medical teacher of his time concerning the most serious epidemic then prevailing in this country. In spite of his errors and his naive conceptions of disease no doubt at times he thought seriously and long of a rational system of prevention. In his notable summary made toward the close of his life on the state of medicine between 1760 and 1809 the most important advance he could mention was the adoption of vaccination in smallpox in preference to inoculation. In his review of progress, in spite of the truly deplorable state of sanitation and transmissible disease, he never lost hope but had the courage and the imagination to write this remarkable prophecy. "Could we lift the curtain of time which separates the year 1847 from our view, we should see cancers, pulmonary consumptions, apoplexies, palsies, epilepsy, and hydrophobia struck out of the list of mortal diseases, and many others which still retain an occasional power over life, rendered perfectly harmless, provided the same number of discoveries and improvements shall be made in medicine in the intermediate years that have been made since the year 1766"[2] And again, this statement from his pen appears, "I look for the time when our courts of law shall punish cities and villages for permitting any of the sources of bilious and malignant fevers to exist within their jurisdiction."

But in 1847 the hopes of Benjamin Rush had not as yet come to pass. A really great man, Dr. Jacob Bigelow of Harvard University, in 1850 wrote his "Practical Views on Medical Education." He states "We know nothing of the

Read before Section on Public Health and Hygiene, Illinois State Medical Society, May 22, 1935, Rockford, Illinois.

1. Rush's Works. Volume 3. Page 77. Philadelphia, 1809.
2. Rush's Works. Volume 4. Page 426. Philadelphia, 1809.

vehicle of cholera or influenza, nor is it probably in the power of any physician, by any art or application of his knowledge, to produce in a given healthy man a case of common pneumonia or of acute rheumatism, of diabetes or Bright's kidney, of hypertrophy or of cancer, or even of a common boil, or wart."[3] He reviews Anatomy, Physiology, Chemistry, Materia Medica, Pathology, Etiology, Surgery, Obstetrics, but not a word appears specifically concerning public health or preventive medicine as such. Only vaccination was recognized quite as it had been nearly 50 years before. It is interesting to note that no mention appears in this monograph by Bigelow in the important contribution of Oliver Wendell Holmes written in 1843 on the prevention of puerperal fever and made there in his own University.

I do not intend to imply that no attention whatever was given in these early years to the preventive aspects of disease. In reading the lectures of the really great men of a hundred and more years ago frequent references are found to the causes and control of disease in all fields. Inoculation and later vaccination were definite and specific preventive procedures and were taught as such. Indeed inoculation was a specialty in itself and professional inoculators skilled in this practice went about doing little else. With this exception however the prevention of disease was not set apart in their teaching programs and therefore occupied a very subordinate place in the education of students in the colleges or of apprentices in private practice.

In the year 1850 appeared the valuable monograph of Dr. N. S. Davis on Medical Education. Here is set forth the early deliberations leading to the creation of the American Medical Association though much is said both in the preliminary Conventions and the Proceedings of the first years of the American Medical Association as well as in the author's comments and suggestions of the medical subjects taught in the 37 medical schools then in existence in the United States. No mention is made of Public Health or the scientific prevention of disease. As a subject it does not appear in any of the curricula; nor is it even hinted at in the critical examinations of the medical teaching of this notable period which marked the beginnings of our great medical organizations, both state and national.

In 1864, written during the midst of the Civil War, Chew's monograph entitled "Lectures on Medical Education" appeared.[4] In his chapter on medical schools, thouh he emphasizes the various sciences, especially Anatomy and the Clinical and Hospital Services, as well as many other pertinent topics, nothing is said concerning sanitation or disease prevention even though all about him (these Lectures were written in Baltimore) the soldiers in the military camps were dying by thousands of preventable diseases.

Following the Civil War was prepared the monumental work "Medical and Surgical History of the War of the Rebellion" published during the seventies. These volumes were replete with medical and surgical data presenting every possible phase of preventive medicine and health problems. They have been an inexhaustible source of material for the later studies of the Pasteur-Lister era which were about to revolutionize the medical world.

In this connection it should be said that the experience gained by physicians in all matters dealing with sanitation in the armies during the war did much to direct their attention to these problems when they returned to their homes where conditions relative to sewage disposal, care of food, water, etc., were still most unsanitary.

In 1876 before the Centennial International Medical Congress in Philadelphia, Dr. Henry I. Bowditch delivered his famous discourse on "Public Hygiene in America" (Little, Brown and Company, Boston, 1877). He exposed the deplorable sanitary state of the nation as it had never been done before and through his pointed questionnaire revealed conditions so alarming that both the public and the medical schools were thoroughly aroused. From this time dates the real beginning of Public Health in this country. The creation of Boards of Health by the states, counties and cities was given a new impetus.

As Bowditch's questionnaire reveals, almost no work in preventive medicine was offered at this time in medical schools. In only three, namely Miami Medical College, Ohio-Jefferson

3. Nature in Disease, Jacob Bigelow. Page 97. Boston, 1859.

4. Samuel Chew, M. D. Philadelphia, 1864.

Medical College and the University of Pennsylvania were courses given worthy of mention and these consisted chiefly of lectures. Progress in teaching Hygiene and Preventive Medicine in the medical schools on the whole lagged behind the work in Health Departments.

As to progress in research and teaching of preventive medicine, the Spanish American War was the most momentous occasion in our history. It came at just the right moment, 1898, to furnish an opportunity for the application of newer methods and the testing of the accumulated discoveries of the bacteriological era. Unfortunately, though most of the facts concerning the control of the prevalent diseases were known, they were not applied until thousands of soldiers were sacrificed by typhoid fever. The work of the Typhoid Commission consisting of Reed, Vaughan, and Shakespeare, appointed at this time to investigate the health conditions of the military camps, deserves a prominent place in the progress of sanitary science. Soon thereafter followed the work of the Yellow Fever Commission in Cuba and that of Gorgas at Panama.

These contributions directed the attention of everyone interested in medical affairs to Public Health as it had never been done before in our history. An impulse was given to health work in such a practical way, both in the field and in education, that the place of preventive medicine in medical curricula became not only more firmly established but definitely enlarged. It had become a very practical field, an applied science, whose value could be so dramatically proved to everyone that there was no room for argument.

The formal courses in Bacteriology introduced into medical curricula in the eighties and nineties inaugurated the basically scientific programs in preventive medicine in medical colleges. At first these courses largely involved sanitary problems and control measures to prevent infectious diseases. Soon their scope was enlarged to comprehend related problems of personal and public hygiene, toxicology, engineering, the control of food supplies, milk, water, air, sewage, etc. Thus nearly every disease furnished its preventable aspects creating a vast field in some respects far more extensive than curative medicine. To meet this situation, some 15 to 20 years ago in this country the Public Health Schools began to be created thus removing from the medical curriculum at least some of the responsibility for teaching a field that had rapidly become in many ways an extreme specialty.

While the necessity to revise fundamentally our medical curricula became increasingly evident during the period from 1890 to 1910, progress was slow in many colleges. Matters were brought to a head, as it were, by the American Medical Association through the creation of the Council on Medical Education. During this period (1908) under a grant from the Carnegie Foundation the survey of medical schools conducted by Abraham Flexner was initiated. Without entering into detail, it may be said that our so-called model curriculum was formulated, each of the various subjects being evaluated and given a place in the curriculum and the time devoted to each subject expressed within definite percentage limits. That allotted to Public Health and preventive medicine at present is 4 per cent. of the entire time allowed for undergraduate work.

From time to time slight modifications in this curriculum have been made by the Council. Naturally some of the colleges have introduced certain special courses in this field. Every clinical branch in presenting its subject matter has increased the time and emphasis devoted to its preventable aspects. This is true even of the fundamental branches. An interesting book has been issued from the Harvard Faculty devoted to the preventive aspects of every subject in the medical curriculum.[5]

The amount of time and emphasis thus broadly devoted to preventive aspects in all departments has had a wholesome effect on the attitude of teachers and through them upon students. It is one of the most encouraging indications of practical progress in this field at the present time.

Now what of the future? Even allowing for such changes and advances as already recounted, it recently became increasingly evident to the Council and to the Association of American Medical Colleges that the Curriculum needed revamping and especially in matters relating to preventive medicine, public health, personal and mental hygiene, psychiatry, etc.

The purpose and intent of the survey of medical colleges now being made has been set forth

5. Warren. Synopsis of the Practice of Medicine, Cambridge, Massachusetts, Harvard University Press, 1929.

by President Wilbur, Chairman of the Council, as follows:

"We think that a complete restudy will be helpful in giving emphasis to mental hygiene, psychiatry, public health, public therapy, and the social and economic aspects of medicine. Psychiatry, public health and the social aspects of medicine have become just as essential in the life of the doctor of today as the training in the classification of the white blood corpuscles. It is evident that a study will make it easier to push into the graduate school the over-emphasis on the specialties that has taken place in many institutions due to various causes, particularly the outstanding ability and personality of the heads of these special departments. . . . We have thought for so long in terms of curative medicine that it is difficult even for us in the medical schools to make room for preventive medicine. . . . A part of our program here will be to see what we can do to bring into medical teaching the new changes that have come into medicine with the extension of public health and personal hygiene."

The present would seem to be the opportune time to inaugurate the suggestions presented in this terse statement. There are three pertinent reasons therefor. First, the people are becoming more and more health minded. Slow and negligent as the public is at times regarding personal and public health, on the whole tremendous progress has already been made. We do not anticipate opposition to health measures at least when the general public can understand them as we did even a few years ago. Opposition to health laws based upon personal and private advantage or gain is becoming less and less significant, however flagrant certain individual examples appear.

Second, a relatively large personnel of men and women have now been created who are engaged in field work in every state in the country. We have not as yet enough adequately trained men and women, nor are health budgets adequate. But the health forces at work are now so numerous and influential and have proven themselves such a necessary part of the body politic that they have become stable and permanent institutions in every community.

Third, educational institutions from the grade schools to the universities are not only devoting more and more attention to prevention of disease but are doing so in a more intelligent way.

These basic reasons furnish an adequate argument for the promotion and added emphasis given to preventive medicine both in medical colleges and in Public Health Schools. There must be a competent personnel. This must consist of men and women trained in medical colleges and in Public Health Schools; also of properly trained public health nurses. Our curricula therefore must be formulated to adequately train these three general groups.

An advanced or postgraduate health curriculum deserves mention. It will not be long before it will become a part of the program of every state. Counties and cities, too, will become active. The state of Massachusetts and Wayne County, Michigan, may be taken as examples of what already has and is being done. Other states and communities are active in the promotion of preventive work by the more efficient training in one way or another of practitioners through health clinics, lectures, demonstrations and field work. Here is a real opportunity for physicians to enlarge their field and aid themselves both economically and educationally through more intimate cooperation with trained health officials.

DISCUSSION

Dr. John Neal, Springfield: This is the most interesting paper on this subject that I have ever heard. You might wonder why I should have any interest or why I came down. This is one paper in the Section that I came to listen to. As I say, it might be of some wonderment to you why I should not be actively engaged in the public health field but for a few years I have been secretary of the medical examining board of the State of Illinois. Odd as it may seem, the greatest percentage of failures is on this, as so many of the students believe, non-essential subject, the subject we are talking of now, preventive medicine and sanitary science. Probably the fault is not entirely the students'; probably the schools haven't put the emphasis they should upon this particular subject. In making a physician, obviously it is a very complex process and he is forced to interest himself, as a student, in a good many different subjects that he personally isn't going to follow. Probably preventive medicine is one of them, although no one can fail to incorporate it into his general knowledge, be he surgeon-wise or going to follow the path of another one of the specialties. I feel that it is comparable probably to an automobile. We think of the automobile as a going affair but there is a little spring down in the distributor box not any bigger than an inch long and about the size of the lead in your pencil and your automobile does not go without that.

Now, the physician can not go unless he has a broad view of just these things. This paper is historical; I think it is a fine thing. If I had anything to do with the faculty of any medical college I would advocate that every student sometime in his course read this paper because it is in my opinion very valuable. Now, I just listened to what the State Health Department is

doing. Most of you are engaged in this particular line of endeavor. So that I am most interested in coming and listening to this paper to learn if possible the reason why so many students, and brilliant students, come before our medical board, where we fail them, because no doubt sufficient emphasis is not placed on the importance of this subject. We are quite well aware of the fact they are all not going into this particular specialty but we feel all students, to be rounded out, should certainly know more about preventive medicine and sanitary science than a great many of them do.

I want to compliment Dr. Davis and to thank him very much for the privilege of listening to his paper.

THE ROENTGEN DIAGNOSIS OF INTRACRANIAL LESIONS

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Intracranial lesions present an important field for roentgen study, first, because the diagnostic possibilities of detecting and localizing them by this method of examination still leave much to be desired and secondly, such findings as have been demonstrated as being of value relative to them may advantageously be checked by further observation. This paper is based upon studies of 63 verified cases from the service of Dr. Eric Oldberg seen during the past 4 years at the Research and Educational Hospital of the University of Illinois. In it both the roentgen findings on the ordinary examination and the information ventriculography or encephalography afforded will be presented, as well as statistical data derived from these findings.

Before proceeding with our own observations, a brief historical review of the literature seems pertinent. Oppenheim[1] in 1899 was the first to describe the effects of intracranial neoplasms on the skull as visualized by the roentgen ray. Church[2] in 1899 and Mills & Pfahler[3] in 1902 reported cases with uncalcified tumors which they were able to recognize on roentgen plates. Lichtheim[4] noted the first intracranial calcification in connection with a gumma and Fittig[5] in 1902 made the first observation of a calcified glioma. Since then the literature has been rich in observations of the direct signs of brain tumors and some of these will be summarized later. Schüller[6] in 1918 called attention to pineal displacement by pressure or traction as a possible localizing aid.

Dandy[7] added a new chapter to the roentgenological diagnosis of intracranial lesions by the introduction of pneumo-ventriculography and encephalography in 1918 and 1919 respectively. These procedures opened up new possibilities, not only in the detection of tumors in the large "silent" frontal areas but also permitted a much more accurate localization of tumors whose general position was known from other signs. The method was particularly valuable in the differentiation of lesions around the third and fourth ventricles. Forrestier[8] and Frazier and Glaser[9] have attempted to obtain similar information by mixing radio-opaque solutions with the cerebrospinal fluid, but to date, the results have not been nearly as successful as those with air replacement. Moniz[10] in 1927 introduced arterial encephalography as an aid to localization by the injection of sodium iodide into the carotid artery. While valuable information may be obtained with it, simpler procedures usually suffice in the cases where this method seems most applicable.

Roentgen findings in connection with intracranial lesions, described by most writers as "direct" signs, are as a matter of fact direct in only a small percentage of cases. Calcification within such lesions is practically the only evidence by which they may be consistently recognized directly. This, according to Weed[11] may be found microscopically in about 40% of all intracranial tumors (excluding tuberculosis and syphilis) but it is present in amounts sufficient for roentgenographic demonstration in only a small proportion of them. Camp[12] found it in only 7.6% of 781 verified tumors and he quotes Crouse's findings at 3% and Dandy and Ströms, at 6%. Such localizing calcifications occur most commonly in craniopharyngiomas, meningiomas, blood vessel tumors and gliomas. When present, they must be differentiated from non-pathological calcifications such as occur in the pineal gland, choroid plexus, falx and pacchionian bodies. Occasionally a pinealoma may be indicated by extensive calcification in the young as in one of our cases.

Most of the signs noted in connection with intracranial lesions are of a secondary nature and it would be more correct to designate them as

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"indirect." They are of many kinds and some of them are sufficiently characteristic to be of localizing value. Bone erosions may be localized or generalized. The former are caused either by involvement of the bone by the tumor as in the case of meningiomata or by pressure contiguity as occurs when acoustic neurinomata erode the petrous ridge. The erosion may be into a paranasal sinus, or canals harboring tumorous growths may be distended or distorted as occurs when optic gliomata invade the optic canal. Generalized erosion of the cranium, evidenced by so-called "digital" markings or convolutional atrophy on the inner table of the skull, may be the result of a large, slow-growing tumor but it is usually due to an internal hydrocephalus secondary to a blockage of the cerebrospinal fluid flow by a tumor in the vicinity of the third or fourth ventricles or the aqueduct of Sylvius. With this finding there is often an associated erosion of the clinoid processes and posterior wall of the sella turcica which must be carefully differentiated from the changes caused by an intrasellar growth.

With pituitary tumors, the changes are essentially in the nature of a pressure expansion. The walls are thinned and ballooned out, the anterior clinoids are displaced upward, the floor downward and the posterior wall backward. Erosion of parts of the boundary may occur.

The sella may also show changes in the nature of a flattening from pressure of a craniopharyngioma; forward displacement of its posterior wall may be caused by posterior fossa tumors. In either of these conditions erosion of the clinoids may also be present.

In the young, increased intracranial pressure with intracranial lesions may cause diastasis of the sutures with enlargement of the head instead of producing the other signs commonly noted in adults.

Bone condensation usually follows direct involvement by meningiomata and may be very extensive. According to Cushing[13] invasion by the tumor causes irritation with subsequent osteoblastic proliferation which provokes the hyperostosis. Kolodny[14] believes proliferation of bone precedes the infiltration of the skull by tumor cells and is the result of associated blood vessel changes. He states that infiltration of the bone by tumor cells takes place subsequent to the commencement of the formation of new bone; it leads to bone destruction and occasionally to complete perforation of the skull.

Findings associated with localized blood vessel dilatations are occasionally of diagnostic value, especially if they are in agreement with the clinical manifestations. Developmental variations may produce similar changes. Angiomata in or near the bone usually present fairly characteristic signs of this nature. According to Elsberg and Schwartz,[15] in 50% of the meningiomata there is seen either unilateral accentuation of the arterial markings or "laking" of the venous channels which is helpful in the diagnosis.

Localization of a tumor may at times be possible even in the absence of all direct or indirect signs on the ordinary roentgen examination, by noting displacement of a calcified pineal gland. Naffziger[16] elaborated upon this finding, first mentioned by Schüller, and laid stress upon the lateral pineal shift in connection with unilateral lesions above the tentorium in cases with increased intracranial pressure. Where such pressure is increased but equal on both sides, as with internal hydrocephalus occurring with lesions of the posterior fossa, no such shift occurs. Vastine and Kinney[17] found calcification of the pineal in 59.2% of all individuals over 20 years of age and in a study of 123 tumor cases which they investigated they were able to demonstrate pineal displacement in about 43% of them.

When the findings, both on the ordinary roentgen examination and neurological investigation fail to verify the presence or determine the location of a lesion, ventriculography or encephalography may give the required aid. By replacing the cerebrospinal fluid with air, either by way of ventricular tap or lumbar puncture, the fluid channels may be outlined roentgenographically and variations from the normal noted. Dilatation, partial or complete obliteration of the ventricles or subarachnoid spaces, or displacement of the ventricular shadows, permits of certain deductions relative to various types of lesions.

With encephalography, most of the air enters the subarachnoid spaces and only a moderate amount reaches the ventricles. This method is of special value therefore in showing congenital cortical aplasias and atrophies, acquired pressure atrophies and adhesive conditions of the meninges. Occasionally a case of epilepsy, either limited to or starting with Jacksonian seizures, reveals a lesion by this method. Rarely the uni-

lateral obliteration of cortical markings may disclose a tumor.

Ventriculography by either uni- or bilateral tap is usually resorted to in suspect tumor cases to secure good filling of the ventricles with air. In rapidly growing tumors of the cerebral hemispheres, the ventricles may be so compressed that they cannot be located. Normal ventriculograms ordinarily rule out a space-occupying lesion but according to Pilcher and Wilson[18] this finding is not absolute or infallible. Obliteration of part of the shadow of an air-filled ventricle usually represents a tumor pressure filling defect but may be simulated by incomplete filling due to faulty technique. Lateral displacement or compression is also a valuable finding in connection with localization. Generally speaking, if one of the lateral ventricles is partially or completely obstructed, the opposite lateral will dilate. With tumors obstructing the venticular system below the foramina of Monro, both laterals will dilate equally, the anterior horns and body more than the inferior horns. Occasionally a third ventricle block can be conclusively shown by successive right and left ventricular taps, as in one of our cases. Usually bilteral dilatation of the laterals with visualization of the third ventricle is presumptive evidence of a posterior fossa lesion. If the fourth ventricle can be visualized, the condition is probably the result of an inflammatory closure of the foramina of Magendie and Luschka or a chronic arachnoiditis with obliteration of the subarachnoid spaces. A marked internal hydrocephalus often results from these conditions.

Accurate deductions from both plain films and air injection studies are largely dependent upon proper technique in the making of the films. *Stereoscopic exposures in the anteroposterior, posteroanterior and both lateral directions constitute the ideal procedure, but direct sagittal views in both directions and stereoscopic laterals should be the minimum requirement. Interpretation of the films should be made preferably with the cooperation of the neurosurgeon or at least with a knowledge of the detailed history of the neurological findings. As has been aptly stated by Heuer and Dandy[19] findings which appear significant to the roentgenologist may be minimized by the clinical signs and contrarily minimal changes may assume diagnostic value in view of the probable neurological localization.*

In 1916 Heuer and Dandy[20] compiled statistics relative to findings on plain films in connection with brain tumors which compare well with more recent reports. Analysis of 100 cases by them revealed that about 45% of them gave general information as to the presence or absence of an intracranial tumor. In only 6% was visualization possible from intratumoral calcification. In 9%, the tumors were localized because of erosion into the paranasal sinuses. Hyperostoses in the region of the tumor were noted in 4% and in a similar number, there were unilateral vascular changes of a destructive nature. In 2% there were diagnostic localized bone atrophies or erosions.

Sosman[21] in 1927 reported 1,007 cases of gliomas, pituitary adenomas, craniopharyngiomas, meningiomas and acoustic neurinomas from Cushing's clinic, constituting 88% of all the cases. He was able to localize 37% of them by the plain roentgen films and stated that there was about a 50% chance of determining the presence or absence of an intracranial tumor by use of all of the direct signs.

Relative to ventriculography, Grant[22] in 1923 reported 40 cases, in 37% of which the method gave exact localization with verification. In an additional 20% localization was made but not confirmed. In 10% the method was misleading, due to either errors in technique or interpretation, and in 7½% tumor was apparently ruled out. In 1925 Adson et al[23] reported 30 cases, explored on the basis of ventriculographic findings. In 24 (80%) the location was verified, in 4 (13%) it was not verified, and in 2 (6%) it was misleading. Grant[24] in 1925 reported on 392 cases of ventriculography done by members of the Society of Neurologic Surgeons. In 311 (79.3%) the method was of localizing value. In 31.6% of all cases, it confirmed the neurological *localization, while it gave localization in 23.7%* when neurological findings had failed to indicate *the site. 44 cases (11.2%) of this series had* removable tumors which were localized solely by the ventriculogram.

The cases observed by us consisted of 29 gliomas, 7 meningiomas, 6 acoustic neurinomas, 5 pituitary adenomas, 3 craniopharyngiomas, 3 blood vessel tumors, 4 brain abscesses and a miscellaneous group of 6 cases including a pial fibroma, a pinealoma, a porencephaly, a ruptured cerebellar cyst and two tumors of the third ven-

tricle in which the histological diagnosis is uncertain. Of the 63 cases, 36 (57.1%) showed diagnostic signs on the plain roentgenograms; 19 of these (30.1% of all) presented direct localizing findings. In the others, such indirect signs as pineal shift or convolutional atrophy were present.

Of the various groups, 11 of the 29 gliomas showed definite and 3 questionable findings of an intracranial lesion. Four of the 6 acoustic neurinomas, 3 of the 7 meningiomas and all of the pituitary adenomas, craniopharyngiomas and blood vessel tumors presented diagnostic roentgen signs. None of the brain abscess cases showed changes on the plain films. In the miscellaneous group 4 of the 6 cases showed findings.

As regards the nature of the various findings, calcification was seen in the pial fibroma, 2 of the 3 craniopharyngiomas and 1 of the 7 meningiomas; a total of 6.3%. Hyperostosis was seen in one sphenoidal ridge meningioma (1.5%). Localized bone erosion was noted in all of the pituitary adenomas; the sella was eroded by the 2 aneurysms of the internal carotid and the 3 craniopharyngiomas; the petrous ridge by 4 of the 6 acoustic neurinomas (22.2%). Localized blood vessel changes were found in the angioma case and in 1 of the meningiomas near the vault (3.1%). Increased intracranial pressure, as evidenced by convolutional atrophy, was noted in 1 of the 5 pituitary adenomas, 5 of the 29 gliomas and 2 of 6 lesions in the miscellaneous group (12.6%). Sellar erosion on the basis of secondary pressure was seen in 8 of the 29 gliomas and in the pinealoma and the porencephaly case (15.8%). Diastasis of the sutures was present in one case, a glioma of the vermis in a girl 9 years old.

In 29 of the 63 cases ventriculography was done. 25 of these (86.2%) gave localizing evidence; in 4 (13.7%) the findings were indefinite. 19 of the cases where this procedure was used had shown no signs of an intracranial lesion on plain films; 17 of these gave localizing information. Of the 15 which showed evidences of intracranial pathology by either convolutional atrophy or erosion of the posterior clinoids but no localizing signs, 9 had ventriculograms and 8 of these were of localizing value. 3 cases gave evidences of tumor by ventriculography when neither the ordinary roentgen nor the neurological examination gave information of such a lesion.

Encephalographic studies of a considerable number of mental defectives and epileptics have been made by us but they are not included in this paper because practically none of them gave findings on the ordinary roentgen examination or revealed changes after the air injection which offered much from surgical interference. Inasmuch as such changes as were noted were not confirmed, they are of little value from a statistical standpoint.

In summarizing our findings, it would seem that our observations closely parallel those recorded in the literature. 57.1% of our cases gave evidences of an intracranial lesion on the ordinary roentgen examination and in 33.2% of them this information was of localizing value. Ventriculography served to give definite localizing findings in 86.2% of the cases in which it was done, including 27 cases where the plain film findings were negative and 15 cases where such findings were only of a general nature. Of the 63 cases, 46 (73%) showed roentgen evidence of an intracranial lesion by either the ordinary roentgen examination or ventriculography.

In conclusion, it might be well to emphasize the fact that with intracranial lesions, perhaps to a greater extent than with other roentgen diagnostic procedures, accurate interpretation requires close coordination with the clinical findings. Negative findings usually have no significance; positive ones have value only to the extent to which they agree with neurological findings or at least where there is no definite discrepancy. Ventriculograms particularly require special skill in correct interpretation; technical errors may give false impressions. With these limitations in mind, roentgenology certainly is a most valuable aid in the diagnosis of intracranial lesions and one which should be utilized in every suspected case.

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DISCUSSION

Eric Oldberg (Chicago): As an adjunct to Dr. Hartung's paper I shall attempt very briefly to discuss the important points of interest in x-rays of the skull as far as the neurosurgeon is concerned.

The minimal x-rays necessary to the neurosurgeon are anteroposterior, posteroanterior and lateral stereo plates of the skull, the latter being taken with the suspected side down, if this is possible. In addition to these views certain types of lesions may demand extra views, such as plates of the optic foramina or of the internal acoustic meati.

In examining skull plates the neurosurgeon first looks at the vault to see whether or not there are generalized signs of increased intracranial pressure, manifested, of course, by digital markings. In addition to this the pineal body is always looked for since calcification in this gland often renders it visible. When a lateral cerebral lesion of any size occupies the cranial cavity the pineal body is very likely to be depressed to the opposite side, a valuable diagnostic sign. In addition to the above factors, the vault should also be carefully examined for endostosis, erosions, and areas of increased vascularity.

The base of the skull is then considered by the neurosurgeon, I think usually in a rather definite and logical order. The sella turcica is first inspected and enlargements or erosions of it are evaluated. It should be remembered that generalized intracranial pressure as well a localized pituitary tumors may enlarge the sella. Pituitary tumors balloon out the sella and rarely produce any changes elsewhere in the skull. Generalized pressure, on the other hand, enlarges the sella markedly but pressure erosion does not have the typical ballooned out appearance; in addition to which there are usually signs of pressure elsewhere in the skull.

The next regions to be examined carefully are the sites of predilection for the growth of meningiomas. These are usually the olfactory grooves, the sphenoid ridges, and the tuberculum sellae. The base should also be carefully examined for erosions such as those sometimes produced by malignancies arising in the sphenoid sinuses or by long-standing acoustic tumors, as they lie on the petrous ridge.

It goes without saying that occasional tumors may be calcified and thereby accurately localized within the cranial cavity, particularly in the stereo plates. Care should be taken not to confuse these, however, with calcification in the choroid plexus, a frequent finding.

In the above brief statement I have tried to give you a rapid survey of about what is in the mind of a neurosurgeon when he examines the x-rays of the skulls of his patients. X-ray in this particular field is one of the most important adjuncts to proper diagnosis and is for that reason indispensable in every case. If plates are methodically examined in each case, just as one makes his methodical neurological examination, it will be found that positive and often diagnostic evidence will be present in a high percentage of patients.

EPIDEMIC PLEURODYNIA IN ILLINOIS

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Several outbreaks of epidemic pleurodynia have occurred in the Atlantic Coast States from North Carolina to Massachusetts. One epidemic has been reported from Knoxville[1] in the Appalachian Mountains of Eastern Tennessee. This is near the borders of Virginia and North Carolina, and river valleys from each of these states extend into the vicinity in which the epidemic appeared. The epidemic which we are describing is the first reported in Illinois,[2] and we can find no records of other epidemics west of the Appalachians. During this outbreak we have seen 72 patients with this disease. One of these was a resident of Indiana, the others lived

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in Illinois. According to conservative estimates at least five hundred residents of Lawrence County had the disease during July and August, 1934. Many others living in the counties North and South of us, and across the Wabash in Indiana, had the disease during this epidemic.

Epidemic pleurodynia has also been reported under various names in several European countries.[3] Daae reported it from Norway in 1872. In 1874 Finsen reported epidemics which he had seen in Iceland in 1856, and 1863.

It also has been reported from Sweden, England, Denmark, Finland, Portugal and Germany. Dabney[4] described the first American epidemic in 1888. He was unaware of the European reports. Since that time epidemics have again appeared in Virginia and also in New York, Pennsylvania, New Jersey, Massachusetts, Tennessee and North Carolina.

The typical case of epidemic pleurodynia is not difficult to recognize but it is easily confused with other diseases. In atypical cases the diagnosis is difficult and errors often lead to unnecessary surgical interference. The disease may also be mistaken for such serious conditions as angina pectoris, or coronary occlusion, thus causing needless alarm. The incubation period in our series was from three to seven days. In some of our patients the probable source of infection could be very accurately determined. The average case starts very abruptly and without premonitory symptoms. An acute pain appears in the region of the diaphragm, lower thoracic wall, or epigastrium. If in the latter region it may extend downward over the abdomen. Some distension may appear in the epigastrium. The pain is often limited to one side but may appear simultaneously on both sides. At times it is very severe and in such cases the patient has a pinched facial expression and bends forward in an apparent effort to limit thoracic expansion while breathing. The respiration is rapid and shallow, children often having a pronounced expiratory grunt. Headache is noted in half the cases and some have backache. Others complain of pain in the shoulders. The fever rises rapidly after the pain appears and soon reaches 101-104 degrees. The pulse rate is proportionate. A few of our patients had nausea and some vomited. The pain and fever accompanying this initial paroxysm nearly always disappears within twenty-four to thirty-six hours, and profuse sweats may occur as the fever subsides. After the paroxysm is over the patient feels weak and exhausted and may complain of muscular soreness in the region involved. After one or two days of relative well-being a second paroxysm of pain and fever may appear. This is milder than the first and does not last as long. Rarely a third one occurs. During the second paroxysm the pain may return to the same region as before, or may shift to the opposite side of the body, if limited to one side during the onset of the illness. After the disease is over the patient is weak but otherwise none the worse for his experience. The average duration of the illness is from three to seven days. Most of the victims agree that the "Devil's Grip" is a very appropriate name for the disease. About one-half of our patients had two or more paroxysms.

The physical findings during the illness are usually unimportant. Throat symptoms are mild if present at all. As a rule nothing can be heard in the chest. The heart rate is moderately increased. Gastrointestinal symptoms are usually mild but in some cases are severe enough to be misleading. There may be some abdominal distension and tenderness in the abdominal muscles. There was tenderness in the intercostal muscles in most of our cases. Swelling in these muscles has been reported but we saw none in our patients. The urine showed nothing abnormal. There was very little change in the blood picture. The total white count was not far from the average and the differential counts showed no changes of importance.

This disease has always appeared during the summer months. The epidemic which we have studied started suddenly during the first week of July, 1934, and disappeared almost as quickly during the last week in August. It attacked both sexes and all ages, from ten months to seventy years. It was most common in children and young adults. The cases were equally distributed throughout the urban and rural populations.

The organism which causes the disease is unknown. The consensus of opinion is that the infection is spread by contact, but there is a possibility that insects may play a part in its transmission.[5] In the present epidemic the disease has followed the valleys of the Wabash and its tributaries in Illinois and Indiana. It appeared during the season when mosquitoes are

most active. If it is carried by mosquitoes, several genera may play a part in its transmission, as the disease has a wide geographical distribution. It somewhat resembles dengue, a mosquito borne disease, but dengue is carried by the Aedes Aegypti mosquito which does not live in many places in which epidemic pleurodynia occurs. During the first Virginia epidemic, Dabney[6] saw four children in one family with epidemic pleurodynia. All of these children had dengue in Texas during the preceding year. Green[7] states that the infection is not carried by water, milk or food. He believes that it is contagious and that quarantine will control it. Crone and Chapman[8] injected whole blood from a patient who had been ill for four days into a volunteer without causing the disease. Callaway[9] states that repeated blood cultures were negative in his patients, no plasmodia were found and that stained smears, dark field examinations and supravital staining methods showed nothing. Small[10] described a plasmodium which he found in the red cells of two patients who had the disease during the epidemic in Philadelphia, which was reported by Torrey in 1924.[11] In this series we have examined blood smears in twenty-four cases and have failed to find any microorganism of any kind. In fourteen of these cases the blood smears were also studied by Shaughnessy,[12] of the Illinois Department of Public Health, with negative results. Thus far no one has been able to confirm Small's findings.

The morbid anatomy of this disease has not been studied. The possibility of a regional muscle or nerve involvement or a serositis must be considered. Armstrong and Payne[13] and also Small[14] think that the fleeting character of the symptoms precludes the possibility of an ordinary inflammatory process in these structures. However Hans Hecksher[15] believes that a serositis accompanies many of the cases, often taking the form of a basal pleuritis, which makes it difficult to detect. He also says that the pleural friction sounds may appear several days after the onset of the disease. This may explain why this condition, if present, may be easily missed, as these patients are usually seen by the physician during the early painful period of the disease. Hecksher[16] also saw one patient in whom a pericarditis occurred.

Complications are rare. One of us saw an orchitis which appeared in a few days after the initial paroxysm. No sequellae of importance were noted.

The diagnosis is easy in the typical case if the characteristics are kept in mind. It occurs in epidemics. The onset is very sudden. The pain is severe and has a rather definite location. The initial paroxysm usually lasts about twenty-four hours. After feeling reasonably comfortable for a day or two the patient may have another paroxysm. One must remember that it may be confused with influenza, pleurisy, herpes zoster, angina pectoris, coronary occlusion, and diseases associated with upper abdominal pain, such as peptic ulcer, gall bladder disease, appendicitis, etc. In the South dengue may cause confusion, but its initial paroxysm lasts longer, and a rash appears on the third or fourth day. We saw no skin eruptions of any kind during this epidemic. Two patients were sent to the hospital with the diagnosis of appendicitis. An alert surgeon who knew of the epidemic made the correct diagnosis and avoided operations. In a series of thirty cases of the disease treated in the Massachusetts General Hospital, two were operated on for appendicitis and one for a suspected perforating duodenal ulcer. The abdominal organs were normal in all three cases. In the same series preparalytic poliomyelitis was twice suspected (both had abdominal pain, headache, and slight stiffness of the neck) and in other cases angina pectoris, pericarditis, ureteral and gall-stone colic were considered as possibilities.[17] These atypical cases are often severe and need further study.

The prognosis is excellent and the treatment is purely symptomatic. Strapping the chest helped a few of our cases by limiting muscular activity, but in other cases it gave no relief. Quinine has been recommended but it is difficult to evaluate the curative action of any drug in a disease of this type. Richter and Levine[18] call attention to the fact that when a diagnosis of epidemic pleurodynia has been made the patient should not be discharged as cured without careful observation. Failure to observe this rule may cause one to miss an early tuberculous pleuritis, or other serious disease.

REPORT OF CASES

Case 1. E. B., a healthy white male, aged 41, became ill very suddendy August 5, 1934, while on train returning to his home from St. Louis. One of his chil-

dren had epidemic pleurodynia five days before this. E. B. had a severe pain low down on the left side of the thorax. Breathing was difficult. He had a short chill after reaching home, following which the fever reached 102.5. The pain was severe during the night and continued through the next day, the fever remaining about the same. During the night of August 6 the pain and fever disappeared and he perspired freely. The muscles in the lower thoracic wall and upper abdomen were sore on August 7 but there was no pain or fever. On August 8 the pain recurred with some rise in temperature, but it was not nearly as severe as it was during the first paroxysm. He was weak, nauseated, vomited once and was dizzy, the second paroxysm lasting twenty-four hours. After this he complained of weakness and had night sweats for three nights.

This is a typical case. Two cases occurred in this family. In some families we saw three or four cases.

Case 2. Mrs. W. W., a widow, aged 63. History of toxic goiter, auricular fibrillation, and arteriosclerosis of several years' standing. Recently health had been much better, and she was doing her own housework. On August 4, 1934, she was feeling as well as usual and did a small washing. While hanging it on the line she had a sharp pain in the region of her heart. Suspecting a heart attack, she immediately called one of us. Within an hour after the onset of pain the fever was 103 and breathing was very painful and difficult. Her chest was strapped, with some relief. Physical findings were negative so far as present illness was concerned, other than tenderness over the intercostal muscles. The blood count was normal. Within twenty-four hours the fever subsided and the pain left. After feeling better for a day, she had another paroxysm, which involved the right side of her chest.

Such a pain, in a patient with a previous history like this, leads one to suspect coronary disease. The subsequent course, with the pain shifting to the right side, confirmed the diagnosis of epidemic pleurodynia.

Case 3. E. L., a healthy boy, aged 10. Attack started suddenly, August 4, 1934. Pain in epigastrium, vomiting, severe headache, and stiffness in the neck. Fever reached 104. Some type of meningitis or preparalytic poliomyelitis was suspected. The blood count was essentially normal. On August 5, about thirty-six hours after the onset of the illness, the pain and fever subsided and the boy was much better. On August 7, another paroxysm appeared and lasted about twenty hours. No spinal puncture was done, as the true nature of the disease was suspected when the fever dropped suddenly and the pain disappeared after the first paroxysm.

Case 4. E. P., a healthy boy, aged 8. Attack came on abruptly on July 3, 1934. Pain in epigastrium with some distension. The face was pinched and the child bent forward, and made pressure over the upper abdomen and lower thoracic region with his hands. The breathing was rapid with an expiratory grunt. The fever was 102. Nothing could be heard in the chest. The blood count showed no leucocytosis. The abdominal muscles were tender in the epigastrium but there was no true rigidity and no soreness over the appendix. However, an early appendicitis or a pneumonia was suspected. The boy vomited, after which he seemed much better. The pain persisted, but he was much improved by the morning of July 4, and during the next twenty-four hours he was very comfortable. On July 5 another paroxysm occurred. This was much milder than the first and his recovery was rapid.

In the last two cases we see examples of the atypical forms which the disease may assume. In each the diagnosis may be questioned. However, the occurrence of a second paroxysm in each, along with other suggestive symptoms, during an epidemic when many other typical cases were present in the vicinity, leads us to believe that the diagnosis is correct. We hope that these unusual and very confusing types will be carefully studied when future epidemics appear. To mistake one of these cases for some acute surgical condition leads to needless surgery. To decide that some urgent surgical disease is epidemic pleurodynia, may rob a patient of all chance of recovery. Either mistake may easily happen during an epidemic.

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DISCUSSION

Dr. John J. McShane, Springfield: Dr. Kirkwood and Dr. Stoll are to be congratulated in presenting a history of the pleurodynia cases which have occurred

in and around Lawrenceville. I must confess, frankly, that I am not in a position to discuss epidemic pleurodynia from the clinical side, as I have not seen any case of this disease. However, there are two or three points mentioned in this paper that are of interest to all of us, especially as they relate to all epidemics of pleurodynia which have been noted in literature in this country.

These epidemics always occur in the summer months of July and August. When they occur there is a sudden outbreak and most of the cases occur among children or people of the younger age groups. Another point is that most of the cases in the epidemic reported by Dr. Kirkwood and Dr. Stoll were from both urban and rural centers; however, he states that many of them were in the valley, and I am wondering whether there might be an insect vector that would be responsible for these cases, especially through mosquito transmission.

I would like to ask Dr. Kirkwood when he finishes his discussion whether he thinks that some of these cases might be possibly atypical form of dengue. I realize that there was no rash, no break-bone fever that you would ordinarily expect in a series of cases like he was reporting if the cases were dengue. He stated that a number of blood specimens were examined by him and by Dr. Shaughnessy for plasmodia and Small's findings were not confirmed.

I am keenly interested in Dr. Kirkwood's and Dr. Stoll's paper and I am wondering whether we have had epidemics of pleurodynia that have not been recognized, for I well recall when Dr. Kirkwood diagnosed his first case of tularemia, which, by the way, was the first to be reported in this state. He told me at that time he had seen cases before that he now believed to be cases of tularemia, and I recall sending to Columbus, Ohio, and obtaining some blood for Dr. Kirkwood from a former patient whom he had treated some ten years before. The blood upon examination was found positive tularemia, proving that this patient had some tularemia some ten years previous to the blood examination. So it may be possible that if cases of tularemia had occurred in Illinois for a number of years previous to the first reported case, it would seem that it is probable that cases of pleurodynia have occurred in Illinois previous to the reported outbreak of epidemic pleurodynia by Dr. Kirkwood and Dr. Stoll.

Dr. Kirkwood (in closing): Concerning Dr. McShane's question about dengue, I do not think there is any connection between epidemic pleurodynia and dengue, on account of the geographical distribution of the two diseases. Dengue is carried by the *Aedes aegypti* mosquito, which is not found in many places where epidemic pleurodynia has appeared. If the latter disease is carried by mosquitoes, it must be carried by different genera on account of its wide distribution. It may be caused by a filterable virus. No one, excepting Small, has been able to isolate an organism of any kind.

Dr. McShane: How far north has the *Aedes aegypti* mosquito been found?

Dr. Kirkwood: Dr. Davis, in the preceding paper, told us about an outbreak of yellow fever which occurred in Philadelphia, and this mosquito is not a native in that part of the country. I think that the *Aedes aegypti*, which transmits yellow fever and dengue, is supposed to have been carried into Philadelphia from the south in ships, and probably propagated there during the hot weather. This mosquito is not usually found north of the 34th parallel of latitude.

Dr. McShane: We had yellow fever up as far as Cairo and also as far as Louisville.

THE PROBLEM OF THE ASTHMATIC CHILD

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The successful treatment of asthma in infancy and childhood forms one of the major pediatric problems in the everyday experience of the medical practitioner.

The beginning of this disease is seen in its purest form in infancy and childhood. There is, at this period, comparative freedom from physical and psychoneurotic influences which may play such a considerable part in the condition when manifested in the adult.

In only a small proportion of children does the disease persist into adult life.

The prognosis of asthma depends partly upon its severity and partly upon the duration of the condition.

Asthma has been observed during infancy. Its typical manifestation then is in the form of asthmatic bronchitis. In later childhood the true type seen in the adult is the common form.

Heredity and constitutional disposition play a great role in the etiology of asthma. If conditions allied to asthma, such as hay fever, migraine, urticaria, neuro-dermatitis, are counted in the history of the antecedents, it will be found that the hereditary element is present in over fifty per cent. of the asthmatics. Either mother or father are affected. If both are, the disease is certainly transmitted and often in very severe form. A generation may be missed and the disease may date back to the grandparents.

The asthmatic child inherits a constitution which is allergic and readily sensitized to all kinds of allergens. The hypersentitiveness may

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also be acquired. Hypersensitive parents commonly beget hypersensitive children; but it does not follow that the sensitization is to the same substances in both.

The parents of the asthmatic child are often characteristic types—artistic, alert, high strung, and exquisitely neurolabile. The offsprings of the intelligentsia are common victims.

Asthmatic children are generally very bright, hyper alert and mentally very active.

Disorders often associated with asthma and no doubt often joined with it in etiology are migraine, cyclic vomiting, vertigo, and many forms of skin manifestations, such as eczema, urticaria, and chronic pruriginous eruptions. With the tendency of asthma to disappear at puberty, one of these other manifestations may predominate and take its place.

Related disease pictures exist in asthma. In all of them apparently a similar central nervous disturbance seems to operate which can manifest itself in variable clinical pictures depending upon the severity of the disturbance or the underlying etiological agent.

The noted German pediatrist, Czerny, aptly expressed this conception when he stated that the nervous system really determines the course of juvenile asthma.

From the standpoint of symptoms, three principal forms or types of asthma may be recognized in childhood: the asthmatic bronchitis, characteristic for the period of infancy and seen very frequently after the second year; the true asthmatic attack beyond that period and up to puberty, resembling in every symptom the adult type; the asthmatic cough, observed generally beyond infancy and characterized by a specific sound, extraordinary duration, resistance to all forms of medication, and remarkable freedom of the lungs from any inflammatory change.

Two factors should be determined in making a diagnosis of the asthmatic cough: a marked familial asthmatic taint, and the presence of any form of neurogenous skin disorder.

A striking feature of nearly all forms of asthma in childhood is their peculiar relationship to the manifestation of exudative diathesis and to nuerolability of the nervous system. This is the congenital constitutional phase which colors the background of practically every asthmatic.

The neurolabile phase is particularly important. According to Czerny, the type of asthma occurring in the child, the degree of its manifestation, the probability of its transitory or permanent suppression, depend entirely upon the quality of the child's nervous system.

All evidence indicates that asthma is practically always an allergic reaction. An allergic reaction is one that is qualitatively altered from the normal of the species and is specific. There are "physiological allergies" brought about by direct contact, and spontaneous, pathological, or hereditary allergies. The latter are also designated as clinical allergies. In all of them, there is an extraordinary degree of familial occurrence. Asthma belongs to the latter type. Some allergen which initiates or precipitates the attack is fundamentally the causative factor.

The hereditary allergies may have histologic, immunologic and clinical differences. They may be divided into two types, the immediate and the delayed.

If the asthma attack develops almost immediately on contact with an allergen, i.e., pollen or horse dander or ingestion of the allergen, one speaks of immediate allergy.

When skin tested with the proper extract of the specific allergen, a positive wheal appears in a few minutes in the sensitive subject.

In contrast with the immediate allergies, there are reactions which do not begin immediately but in from two hours to two or even three days after contact with the exciting cause. These are "delayed reactions", or "delayed allergies". In subjects possessing them, skin tests with the specific substances are quite uniformly negative and immune bodies are not demonstrable in the serum. These delayed allergies account for the unsatisfactory results of tests in cases that fall in this group.

With regard to the clinical types of allergy and their relation to the skin test, it is important to bear in mind that the positive skin test to foods and air-borne substances is an immediate reaction and only occurs in those cases which also show an immediate clinical reaction.

If the skin test is negative, the allergy is of the delayed type. A negative skin test in such cases would not exclude the possibility of allergy to the test substance. Delayed skin tests to foods

and air-borne substances have no known clinical significance.

The most important predisposing cause of asthma and of practically all allergies is heredity. There is a great deal of evidence that both the immediate and the delayed allergy have a common background of inheritance. The degree and amount of inheritance will determine the age of onset of the disorder. According to Cooke 75% of the offsprings will show asthma if there is bilateral inheritance, and of this 75% over 66% will show the onset of the disease before the 10th year. With unilateral inheritance, about 50% will develop allergy and in over 31% the onset will occur before the 10th year. A specific sensitization or its clinical form is not inherited, only the tendency to it.

The question arises—what causes the development of the sensitization mechanism and what factors determine the particular allergen in a given case? All evidence seems to point to stimulation by contact as the causative factor in developing the sensitization mechanism. We do not know what factors determine the allergen. Excessive contact does not seem to be required.

The substances most commonly acting as exciting causes of the asthmatic attack may be inhaled from the air, ingested as foods, injected subcutaneously, or absorbed from foci of infection.

Inhaled, ingested and injected substances are most apt to give the immediate reactions and usually give the immediate positive skin test. In rare instances they may give delayed reactions; then the skin tests will also be negative.

Allergens derived from foci of infection are the chief cause of delayed reactions.

Sensitivity to foods is particularly common to the asthmatic in the age group from infancy to three years. There may also be sensitivity to inhalants, practically never to both. From then on to five years, they may be sensitive to both.

Food becomes relatively unimportant as a sensitivity factor after the fifth year. Then the air-borne substances are in the ascendant and the allergens derived from focal infection. Air-borne substances ranked in order of frequency as a causative allergen are house dust, ragweed, feathers, animal emanations, pollens, orris root, cotton seed, and kapok.

Food allergy almost consistently tends to disappearance by or before the age of ten. This often does not mean relief from asthma because the allergy to air-borne substances dominates by that time, or becomes pronounced with the disappearance of the other. This is an almost inevitable sequence if the constitutional taint is pronounced in the case. Whereas hypersensitivity to food proteins seems to be present at birth and be gradually lost during childhood, the hypersensitivity to inhalant proteins tends to be acquired and to be very resistant to change.

In asthma due to infection, the causative factor is invariably located in the upper respiratory tract. Up to the age of five or six years the foci are generally located in the lymphoid tissue of the tonsils. the pharynx, and the nasopharynx. After this age, the para-nasal sinuses are developed enough to become local foci of infection and as the child grows older these and other head sinuses may become the chief seat of a focal infection from which the specific allergens develop.

Often many repeated upper respiratory infections precede the development of the first asthmatic attack and in some cases an attack of pertussis or of measles or of pneumonia followed by prolonged cough and recurrent bronchitis finally develops into true asthma. The organisms most frequently involved in the development of the specific allergen are the streptococcus hemolyticus and viridans, the pneumococcus, the micrococcus catarrhalis and in very rare instances the staphylococcus hemolyticus and non-hemolyticus.

Infection is relatively unimportant as a causative factor of asthma in early infancy and childhood, but becomes increasingly important with increase in age.

Protein sensitization alone does not entirely explain all of the manifestations associated with allergy.

The theory has been advanced that the basis of allergy is a disturbed balance between the sympathetic and parasympathetic nervous system.

Peshkin sponsors the conception that there exists within the body a "physico-chemical disturbance" which probably manifests itself through the nervous system. He states, "If the body is in a state of physico-chemical equilibrium, the

allergic patient enjoys freedom from symptoms in spite of exposure to an etiologic protein."

The patient has acquired protein tolerance.

Vaughan speaks of a "balanced allergic state." If any factor disturbs this equilibrium, symptoms will result. The factors may be specific or non-specific or both. The specific factor may be an overdose of the sensitizing protein. The immediate result of the introduction of such a factor will be the onset of an asthmatic attack.

The development of asthmatic symptoms and a true attack may be delayed for some time in spite of constant exposure to a known allergen.

According to Peshkin the development of the attack of asthma immediately upon exposure to the allergen is due to immediate and complete unbalancing of the physico-chemical equilibrium. In the delayed attack it takes a long and constant stimulus or irritation of the allergen to induce physico-chemical unbalance and the development of an attack.

The protective mechanism which maintains physico-chemical balance may become disturbed through non-specific causes. If exposure to a sensitizing protein is insufficient to disturb the physico-chemical equilibrium, an intercurrent infection is often enough of an added factor to produce complete unbalance. The intercurrent infection alone will not precipitate the asthmatic attack even in the presence of a partially maintained balance. It requires the added factor of the specific allergen.

When the physico-chemical balance is profoundly disturbed, the various non-specific and specific factors acting together will always induce asthma and precipitate the attack.

The striking characteristic of the asthmatic state in childhood are the persistent chronic cough and the dyspnea during the actual attack.

Pathologically there is remarkable freedom from actual pulmonary disease. The x-ray picture will often show the picture of moderate sinobronchitis as evidenced by moderate mediastinal gland enlargement and bronchial markings. Eosinophilia may be present and marked or may not be present. It is not an obligate symptom of asthma. The pathological picture in the lungs is definitely non-inflammatory.

The dyspnea is brought on by impediment to the free entrance and exit of air. The lumen of the bronchi may be narrowed as a result of actual thickening of the wall as a result of muscular contraction or through plugging with exudate.

Bronchospasm may be present although smooth muscle sensitizing antibodies have never been demonstrated by animal experiment to exist in the asthmatic subject. They are present in the subject artificially sensitized by injection of horse serum.

The bronchial muscle may be stimulated to contract through reflex action of the autonomic nervous system. Some such action may take place and explain the hypertrophy which actually exists in the asthmatic subject. This muscular hypertrophy is not as great, however, as it is in chronic bronchitis in which dyspnea is commonly not present. One can hardly believe that it is a principal factor in bringing about the dyspnea.

Angioneurotic edema of the bronchial wall may explain part of the picture. It is a common manifestation of allergic reactions. The striking effect of adrenalin in relieving the immediate attack lends support to this view. The plugging of the lumen with thick viscid mucus may also lead to considerable mechanical obstruction.

To fix the causative factors in asthma, there is required first of all a carefully taken history with reference to the hereditary factor in the antecedents and a careful inventory of the child's daily environment, habits and dietary with reference to exposure to possible allergens. A careful physical inventory, particularly of the chest, and the head region, including rentgenography of head sinuses and of the chest, tuberculin testing and other laboratory tests required to establish absence or prescence of active focal infection; and finally a series of protein skin tests accurately performed with standardized materials and properly interpreted.

The subject needs to be studied carefully in this manner and kept under observation and supervised over a considerable period.

The treatment of the asthmatic is quite a complex problem and involves a number of factors. It is to the advantage of the little asthmatic subject to have the disorder under control at the earliest possible moment and to prevent it from assuming chronic form. The longer its duration,

the more resistant it becomes to treatment and the more disabling its effects. Pronounced chest deformities, chronic enfeeblement, and varying degrees of bronchiectasis are an almost inevitable result.

Since the disease is so essentially allergic in nature and dependent for its manifestation upon the effect of allergens, it is of prime importance to discover the specific allergen or allergens which may be etiologic factors in a given case.

For practical purposes these will be found in three sources—the food, inhalants derived from material in the environment, and allergens derived from focal infections.

In the infant and very young child, the dietary must be carefully assessed for possible food allergens. Milk and eggs are particular offenders; to a less degree other foods, such as fish, especially shell fish meats, and some fruits and cereals. Today test material is developed for practically every food eaten by man.

Food allergy becomes decreasingly important with increasing age of the child. After the age of five, comparatively few food allergens precipitate an asthmatic attack.

The most careful scrutiny of the environment must be made. Allergens inhaled from the environment become one of the very frequent causes of asthma in the child after four or five years and up to adolescence. House dust, animal emanations from domestic pets or the horse in the form of dander, feathers, clothing, the pollens from flowering plants are all common sources and must be checked and if possible removed from the environment.

If this is difficult or if such important foods as milk and eggs are involved, gradual desensitization can be brought about by the injection of specific allergens. Such injections must be continued for a long period of time and must be gradually increased in dosage as tolerance is established. This sort of treatment may be necessary at intervals over a period of years.

Asthma precipitated from allergens originating in focal infections are probably the most common type the practitioner will encounter. It is certainly the most common type beyond the third year. It is a bacterial allergy. The focus of infection is invariably about the head. In the younger child before the age of six almost entirely in the tonsils or lymphoid tissue of the throat, in the child beyond six the head sinuses play a major role.

An early and thorough tonsillectomy and adenoidectomy will bring a great deal of relief to the little asthmatic and peace to his medical advisor. The certainty of relief or cure does not, of course, follow in every case, but it will in a large majority and is a measure first to be thought of in a proven case of the infective type of asthma. I have never yet failed to see even the most severe case somewhat improved after this measure. Inadequate results are often due to an operation delayed too long or badly performed.

Where sinus infection is the focus, the situation is more difficult. The region is quite inaccessible to treatment and does not respond like the more exposed regions of the throat. Over ambitious procedures and treatment will do quite as much harm as not doing enough.

With marked clouding of the sinuses or with protracted rhinitis in the older child and continual repetition of the asthmatic attack, irrigation of the head sinuses and permanent antrum window drainage is advisable. It will do no harm if carefully performed and may do a lot of good. X-ray treatment of the head sinuses has been recommended. I have had no experience with this form of therapy.

The outright infective type of case is, in my opinion, the only type of case in which vaccine therapy is of any value. The vaccine must be autogenous. Personally I have seen very little benefit from stock vaccines. In my own experience all vaccine therapy has proven to be a precarious reed to lean upon and I have been more often disappointed than helped, although I must say in all fairness that in a few cases the results seemed almost spectacular and I would never fail to try the treatment in a difficult case.

All other non-specific forms of therapy, such as typhoid vaccine or foreign proteins, are practically useless. The same thing is true of measures to produce hyperpyrexia, such as vaccines or external heat. They may be even dangerous, due to a certain degree of exhaustion which they may produce.

For the acute attack no remedy quite equals

adrenalin or the related substances epinephrine or ephedrine. Intravenous or subcutaneous use will give almost immediate effect and will ameliorate, or often cause the entire attack to subside. It is unwise to continue its use beyond the attack as is often done. With continued use its effectiveness seems to be lessened.

The belladonna preparations and particularly their alkaloid atropine are very useful remedies. These remedies may be continued during the intervals of attacks and can be given over long periods.

I have the distinct impression that calcium salts, especially the gluconate or lactate given during the intervals of attacks are of some value.

The dietary regime of the juvenile asthmatic, aside from the concern of food allergies, is important. These cases are practically all undernourished, are troubled with anorexia, and are subject to chronic fatigue. Often their condition is complicated with chronic forms of eczema characterized by severe itching. It is well to aim at high concentration of the diet so that the volume of food taken can be small and emphasize adequate intake of the accessory factors, especially the Vitamins A, B, C and D.

Elimination from the environment of every possible inhalant allergen is of the greatest importance. House dust, feathers, animal dander are important offenders. Flowering plants about the house and yard or garden plants and weeds need investigation and possible elimination.

Much can be done in the way of prophylaxis for the juvenile asthmatic if his environment is kept clear of these potential allergens. With a little care and judgment he can be protected against contact with a good deal of upper respiratory infection which without question furnishes the most frequent and common etiological factor in precipitating his attacks.

For the severe and protracted asthmatic no single therapeutic factor is quite as beneficial as a complete change of climate—to warm semitropical regions with a minimum of vegetation and fog. Such geographical regions are relatively free from conditions which make for much upper respiratory tract infection and for this reason are so beneficial to the asthmatic. His own weakness and disorder in this respect is improved and he is exposed to a minimum of contact.

To me the juvenile asthmatic has always seemed a continual challenge and a little patient who presented a series of problems for nearly all of which relief is possible if an intelligent attack is made upon them. Again and again one can have the delightful experience of transforming a child from seeming chronic weakness and disability to one in good health and equal to practically all the demands of normal childhood.

DISCUSSION

Dr. J. P. Coughlin, Chicago: Dr. Schlutz's paper is so comprehensive that it does not admit of very much discussion, but I would like to bring up one point. These children during an attack are immeasurably helped by the administration of adrenalin, atropin or belladonna. I gave a child two or three minims of adrenalin and 1:1000 grain of atropin and was disappointed in the result. Lately I have not hesitated to give 10 minims of adrenalin and 1:300 grain of atropin. I know the result is established quicker and is more lasting than by the more conservative dosage. I do not know how much atropin it would take to kill a three-year-old child and I hope I never find out, but I know I can give the amounts stated above without harmful results.

Dr. A. H. Parmelee, Chicago: One thing that impressed me about Dr. Schlutz' paper is that he brought out the fact that with increasing age the child shows less and less reaction to food reagents. The reason this interests me is that so often mothers bring in children six, eight and ten years of age with asthma, who are being partially handicapped, in my opinion, by a poorly balanced diet because the mothers are afraid of offering food substances toward which the child some years before has shown a skin reaction. We know that skin reactions for foods do change from year to year. The things to which a child has been sensitive in infancy he may not be sensitive to in later years. The thing about all these allergies which is of importance for us to remember is that our responsibility as physicians is toward the whole child and not toward one clinical manifestation; because a child has exzema we must not have our minds so focused upon the skin that we cannot remember that the whole child is part of our responsibility. It is more important for him to grow and be a well developed and well nourished child in every respect than it is for the mother to be pleased because a little skin rash has cleared up. An outstanding example which illustrates my point better than anything else is the occasion when a mother brings in a child who has been weaned from the breast at the second or third month because of a moderate or mild eczema; this to my mind is the most ridiculous thing one could do. To take a child off the best food he

could have for the sake of something that annoys the mother much more than it annoys the child, and without any absolute assurance that it is going to bring about any beneficial effect to the infant in the long run, is bad technic. I think the same reasoning applies to the case of the asthmatic child. We often see a child who is poorly nourished on account of a poorly balanced diet improve without any other treatment than being put back on a well balanced diet, regardless of the things it had been sensitive to some years previously.

Dr. F. W. Schlutz, Chicago (closing): In answer to Dr. Coughlin, the dosage of adrenalin can be fairly large. Personally, I have no fear of dosage of adrenalin in the asthmatic child. The thing that has impressed me very much is the tolerance that develops to this drug if you persist in giving it beyond the asthmatic attack. This is true of adrenalin and ephedrin. It is a common procedure. I have seen children come in that were regular adrenalin addicts. They had been getting adrenalin way beyond the attacks, hoping to curtail the next one that might come on, with the result that the adrenalin was not effective. You have the best effect with adrenalin if you use it just as a shock measure during the attack.

I agree with the point that Dr. Parmelee made about the fewer food allergies in the asthmatic child beyond the fourth or fifth year. The trouble with the asthmatic child when he comes to you is that he is altogether too thin. He is undernourished and is an immediate victim to anything in the way of infection on account of lowered resistance. One way to make him more resistant is to feed him. I will not say that we can disregard food allergies but they sink into insignificance in the older child when compared with other factors such as focal infections. It is very important to get the juvenile asthmatic in a good state of nutrition.

I also agree with Dr. Parmelee about weaning and the readiness with which doctors wean a child from the breast because he has colic or has eczema. The trick about breast feeding in such cases is to give the child a minimum amount of breast feeding and complement it with a non-allergic food. In this way the good effect of breast milk is not lost altogether. If it is carefully given and the mother's breasts kept functioning, one will find that by degrees tolerance for breast milk will be established and it will be possible eventually to put the baby back on full breast feeding.

Dr. Cowie of Ann Arbor presented a very interesting paper before the last American Pediatric Society meeting in Cleveland. He made the interesting observation that testing materials deteriorate very markedly with age and that testing material is by no means standard even when it comes from the same firm. The potency of it is quite dependent on the nitrogen content of the material. When deterioration takes place this nitrogen content disappears. He showed surprising variations in material from the same lot. This may explain probably why sometimes you have unfavorable or negative results with your testing material.

THE HISTIDINE MONOHYDROCHLORIDE THERAPY OF GASTRODUODENAL ULCER

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In 1933, A. G. Weiss and E. Aron reported the effect of the parenteral injections of amino acids in the prevention and healing of experimental peptic ulcer.[1-7] These investigators used the Mann and Williamson[8] operations for the production of experimental ulcers in dogs. This technic consists in transplanting the pancreatic and biliary portion of the duodenum into the terminal ileum, then restoring the continuity of the stomach by anastomosing the pylorus with the jejunum or proximal ileum, by an end-to-end anastomosis. Peptic ulcers of a subacute type develop almost uniformly just beyond the pylorus after ten to twenty-eight days. Profuse diarrhea, severe anemia, frequently pronounced melena and cachexia occur, with finally death by emaciation. Complete protein digestion with the amino acid end stage is seriously affected and probably not completely attained. Aron and Weiss thus considered the absence of the essential amino acids from the metabolism, the important factor, and the ulcer and death consequently produced by amino acid deficiency. Of the essential amino acids not synthesized by the body, histidine alone prevented the formation and evolution of the experimental ulcers. Traumatic erosions and experimental ulcers healed under parenteral administration. The consistently complicating melena, so often fatal, did not occur in the animals where histidine was used, and while emaciation and anemia appeared the animals survived.

These observations led to the use of histidine parenterally in the therapy of gastroduodenal ulcer in man. The results were encouraging and satisfactory. A number of contributions to the literature confirmed the original report with results comparable to, and frequently superior to the generally accepted methods of ulcer therapy. The appended bibliography contains these references.

In a preliminary report we[9] indicated the very

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favorable response obtained by us in the use of this treatment in 21 patients, all of whom were ambulatory and rather a liberal dietary regime. We are now analyzing our series of 73 patients treated by parenteral histidine monohydrochloride, observed over a six months' period.

Selection of Patients and Analysis of Study. All patients in this series had clinically active symptomatology. Except for definite emergency surgical indications these patients were unselected. We treated five patients with high grade organic obstruction. Three patients had functional obstruction. There were four cases of marginal ulcer following gastrojejunostomy. All patients had had previous therapy of medical or surgical nature. Several methods of treatment in the same individual with unsatisfactory results was the history of all patients. Eight hemorrhaging patients are included in this report. The age varied from 18 years to 76 years. There were five females and 68 males. Seven gastric ulcers and sixty-six duodenal ulcers were found. The duration of symptoms varied from two months to twenty years. The distribution according to duration of symptoms is shown in Table 1.

Method of Study. A clinical diagnosis was substantiated by definite x-ray evidence in all patients. All were kept ambulatory, most of them continuing their usual occupation. At the beginning of treatment the diet generally advised was an average American diet, low in residue, containing approximately 3,000 calories, non-stimulating and free from condiments. As relief appeared, qualitative and quantitive increase was permitted. When pain was pronounced, for the first week a bland non-residue diet was employed, but rapidly increased as subjective relief appeared. Smoking was permitted. No other medication was used except mineral oil for constipation.

In addition to the ordinary routine study by laboratory methods of the stools, blood, urine and gastric contents, in many patients specialized investigations were employed. In twenty-three cases we made serum protein determinations before and after treatment. There was no significant alteration in any of these. The gastric secretion investigations routinely pursued, consisted in the passage of the Levene tube F 16 intranasally, producing a minimum of discomfort without salivary contamination, and fractional aspirations practiced with the tube continuously *in situ*. All fasting gastric secretion was aspirated, measured and titrated for free hydrochloric and combined acids. Ewald meals were fractionated at half-hour intervals for three samples. Alcohol meals, 50 c.c. of 5% alcohol were used the following day, using the fractional method. The next day histamine dihydrochloride 1 c.c. 1:1000 solution was given subcutaneously and the fractional analysis repeated as above. These various methods of investigation of the gastric contents are described with charts in our original report and will not be repeated here. The physical characteristics of the resting gastric secretion showed visible changes under histidine therapy, becoming thicker and more viscid, although difficult to demonstrate by specific gravity or viscosity determinations. We have, however, been unable to demonstrate any marked quantitative change in the mucin content of the gastric juice using the technic described by Fogelson.[10] Mucin determinations were made in fifteen cases. The stimulated secretion in 60% of the patients decreased in amount with a diminution in the free and total acid titer. Toward the end of the injection treatment, and subsequent to treatment, the gastric secretion showed a return to normal percentages in quantitative and qualitative features. Of the eight cases that showed hypersecretion and retention previous to therapy, two had a return of these symptoms and had to be operated on for relief.

Dosage and Method of Treatment. L histidine monohydrochloride (Beta imidoazole alpha amino monohydrochloride propionic acid) is prepared from blood by acid hydrolysis and mercury precipitation. The purified product is used as a 4% aqueous solution (Larostidin Roche) put up in 5 c.c. ampoules. The drug is administered intramuscularly in alternate buttocks daily. Five cubic centimeters was accepted as the basic daily dose. Patients showing little or no improvement in subjective symptoms after the tenth dose received two to four times the basic dose daily. The number of doses in our series varied from a minimum of ten in one patient, where complete early relief ensued, to a maximum of sixty doses in a refractory case which responded slowly. In patients with a

history of long symptomatology we have deemed it advisable even though relief was obtained to continue treatment by the use of one or two injections weekly for one or even two months. We have as yet not had the indication for repetition of a course of treatment.

The injections are comparatively painless. There was no instance of local, general or focal reaction. Gastric symptoms have not showed aggravation in any patient. There were observed no ill effects from the treatment. With careful surveillance of all patients we have been unable to demonstrate any renal injury as reported by Newburgh[11] in his observation of toxic effects in animals. No contraindications of this treatment were observed. We can definitely state the treatment is without danger.

Effects on General Nutrition. Constitutionally the patients who responded favorably improved rapidly in general health and physical well-being. This was associated with a marked increase in the hemoglobin and red cell count in patients where these were below normal. This was especially noticeable in patients treated during and shortly after ulcer hemorrhage. There was no change in the pulse rate or blood pressure readings. About 80% of the patients gained weight, average five pounds, although a few who gained are listed as failures. In 10% of the cases the weight remained stationary, and in 10% there was loss, ranging from two to six pounds.

Subjective Results. In the favorable cases the subjective improvement came very early in the treatment, usually after two to twelve injections. Pain, hyperacidity, gas and belching were promptly relieved; appetite returned quickly. Night distress disappeared.

Immediate Results. Immediate results were evaluated at the termination of approximately 24 injections. In our series of 73 patients, fourteen showed little or no improvement after 24 days of treatment. However, after continuation of two injections weekly, two were relieved after one additional month, and one after two months. Eleven have persisted in having symptoms and are listed as failures of histidine therapy. Partial relief has been obtained in one of these listed as unsuccessful. This can hardly be ascribed to histidine treatment, because it appeared three months after treatment was discontinued.

Later Results. Later results are evaluated at the six month period. Four patients, in addition to the eleven described as immediate failures, increased the failures for this period to fifteen or 21%. Fifty-eight, or 79% can be classified as the six months' clinical-relief group. Twenty-seven, approximately 37% of the total patients, showed complete disappearance of the radiologic evidence. This included six of the seven gastric ulcer patients. Fourteen per cent, or ten patients, indicated improvement in the radiologic lesion. Twenty-one patients, or 28% revealed no change in the x-ray after treatment. This includes one gastric ulcer.

TABLE I

Distribution of incidence, and results after six months, according to duration of symptoms before beginning treatment.

Duration of symptoms	Percentage of total cases in each group	Favorable responses; percentage of total cases	Unfavorable responses; percentage of total cases	Favorable responses; percentage of each group	Unfavorable responses; percentage of each group
Less than 1 year.....	22	20	2	91	9
1 to 2 years	21	17	4	81	19
2 to 5 years	18	14	4	78	22
5 to 10 years	17	14	3	81	19
10 to 15 years.....	15	11	4	73	27
15 years and over....	7	3	4	43	57
Totals	100	79	21	..	..

One patient showed a return of severe symptomatology, and operation was advised. Briefly, his protocol is given as follows:

Case 30. H. L., male, aged 49 years. He had an ulcer history of fifteen years' duration, more or less continuous. Fourteen years ago the ulcer perforated and was closed by purse-string suture. Four years ago re-operation was performed. Multiple medical treatments were failures. Complaints before histidine therapy were: severe pain, eructation, vomiting and severe weakness. Examination disclosed a small mass, freely movable, at the pyloric area. Gastric retention measured from 700 to 1,200 cubic centimeters; Ewald meal total acid 97°, free hydrochloric 72°; x-ray showed constant deformity of duodenal bulb with pronounced retention, evidently of an organic type. Surgical interference was advised, but while awaiting assignment Larostidin was started. The improvement was so pronounced that the patient demanded delay in operation. All symptoms were relieved and the retention disappeared. The weight rose from 118 pounds to 149 pounds. The mass was reduced in size, although still palpable, and the x-ray continued positive. Ten weeks after the course of injections pain recurred with, however, little or no retention. The patient lost five pounds. Operation was urged, and a

large indurated scar was found at the pylorus involving the pancreas. There was no evidence of malignancy. Posterior gastroenterostomy was performed; convalescence was uneventful. Histidine therapy definitely was an aid to this patient, although he is listed as a complete failure in the parenteral treatment.

Another patient, fourteen weeks after the discontinuance of treatment, with a history and

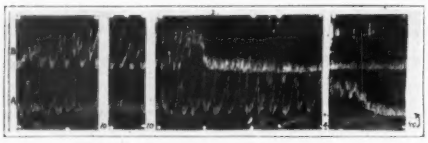

Fig. 1. Kymographic tracing taken before Histidine Therapy. This shows periods of activity of 40 to 50 minutes' duration separated from one another by quiet periods lasting about 40 minutes. The active period is characterized by Type 1 contractions on low tone closing with definite periods of high tone sometimes surmounted by Type 3 contractions.

findings very similar to the case just described, who had just as definite indications for surgical therapy because of organic obstruction without a palpable mass, became completely obstructed. We ascribe his setback to rigorous, intravenous anti-syphilitic therapy. Although surgery was advised when first seen, he also is listed as a complete failure of this treatment in our series.

A third patient, sixteen weeks after his treatment, developed a gastric hemorrhage. Perforation occurred in one patient in this series. With a history of over twenty years duration and no relief from various therapeutic measures, twenty-five injections of histidine gave complete subjective relief. The x-ray evidence of duodenal ulcer persisted, however. Two weeks after discontinuance of this treatment perforative symptoms developed rapidly. Operation was performed and a large indurated duodenal ulcer which had perforated anteriorly, was discovered. Recovery occurred.

The patients, four in number, with previous gastroenterostomy, and symptoms and evidence of gastrojejunal ulcer, uniformly cleared quickly, symtomatically and radiologically. The radiological evidence of healing is very definite in the gastric ulcer series. However, because the duodenal series contained little evidence of niche or crater formation, the radiological evidence of healing, here, as in any series of duodenal ulcer patients, is open to considerable objection. Opinion in interpretation is too great a factor. Fifty per cent are thus listed as showing radiological improvement in the duodenal ulcer group.

This series, then, includes fifteen failures in the group of 73 patients, approximately 21% showing no improvement at the end of the six month follow-up analysis.

We make the observation that patients with syphilis do not respond well to this ulcer treatment. It is also questionable whether combination of this form of therapy would give better results combined with alkali administration. A trial in a few recent patients seems to indicate that better results are attained with histidine alone.

A few representative, brief protocols are here given to illustrate the evidence of the efficiency of this amino acid therapy:

Case 9. J. C., male, aged 34 years. The ulcer history was of twelve years' duration. The history is very comprehensive, consisting of repeated hospitalization for medical treatments, including alkalis, intravenous and foreign protein therapy with rigid dietary control, all without relief. Gastroenterostomy was tried with resulting aggravation of symptoms. Subsequent varied medical therapy repeatedly used produced no improvement. The x-ray revealed duodenal and gastrojejunal ulcer. Histidine produced relief after seven injections. This patient has remained free from symptomatology since cessation of treatment. The x-ray deformity has disappeared completely. Gastric

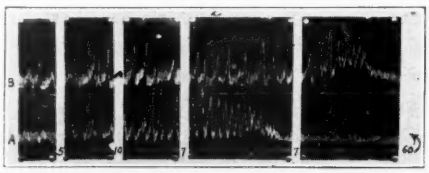

Fig. 2. Kymographic tracing taken after ten days of Histidine Therapy. This shows active periods of 40 to 60 minutes' duration separated by 60 minutes of quiet. The active periods are characterized by Type 1 contractions on low tone, closing with small increase in tone.

motility studies before treatment indicated extreme hypermotility with Type 3 contractions predominating at the end of the contraction phase. During and after treatment this type of contraction disappeared and Type 1 substituted, a definite diminution in the motor activity of the stomach. This evidence has been consistently demonstrated in a small series of patients under this amino acid treatment. The appended kymographic tracings illustrate the findings in the patient described.

A gradual decrease in motility is seen in the figures 1, 2, and 3. The most characteristic features are the

shortening of the active periods and the abolition of the high tone change and Type 3 contractions which were present before histidine therapy was initiated. This running picture was selected as representative of the four cases studied in this manner.

(Interpretation by R. D. Templeton, Associate Professor Physiology, Loyola University.)

Case 17. C. D., male, aged 51 years. Ulcer history has been present for nine years with practically continuous symptomatology. Relief is obtained only by alkalis, vomiting or food, which must also be practiced to relieve night distress. There are associated complaints of severe weakness and loss of weight. Blood examination shows: hemoglobin 40%; red blood count, 2,180,000; white blood count, 7,600. Three hundred fifty cubic centimeters were aspirated from the fasting stomach. The x-ray report read: "Penetrating ulcer of the lesser curvature of the pars pylorica with marked pylorospasm." Ten injections of 5 c.c. of

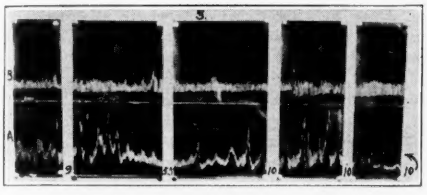

Fig. 3. Kymographic tracing taken after thirty days of Histidine Therapy. This shows periods of activity of 15 to 35 minutes duration separated from one another by periods of quiet lasting 60 to 130 minutes. The active periods are characterized by Type 1 motility on low tone; closing with practically no tone level change.

histidine were used with but slight improvement; then ten injections of 10 c.c. with complete relief; ten more injections of 5 c.c. were then given. The x-ray at the end of eight weeks showed complete healing of the defect. The red blood cell count rose to 4,140,000 in four weeks. There has been no complaint six months after cessation of the treatment.

Case 57. D. V., male, aged 50 years. History of gastric distress has been present for five years with pain after meals and gas. Four days before admission, while having severe pain he vomited bright red blood in large quantities and had several black, tarry stools during the next two days. Severe weakness and vertigo is present. The patient presented symptoms and findings of severe hemorrhage. The blood examination showed: hemoglobin 45%; red blood count, 1,800,000; white blood count, 9,350. Rest and routine treatment without alkalis for bleeding ulcer was employed. Histidine therapy was initiated after then days. The blood count at the end of the therapy, 36 injections without other hematinic medication, was: red blood cells, 4,200,000. The roentgenological evidence, three weeks after entrance, was: "Constant deformity of the duodenal bulb diagnostic of ulcer." Relief from pain was obtained with five injections. There was a gain of 10 pounds in weight. The duodenal deformity disappeared at the end of the therapy.

Case 26. Dr. R. H., male, aged 33 years. History of duration of symptoms dated twelve years with two severe hemorrhages, one six years ago and another two years ago. Patient has continued on alkali powder treatment without interruption with several hospitalizations. The dietary restrictions have been especially rigid, such as no meat or coffee for the last four years. For years he has awakened each night between 1:00 and 2:00 a. m. to take milk and powder to relieve pain. The x-ray reveals duodenal ulcer. The amino acid treatment gave complete relief. The patient is now on a liberal diet including meats; the night distress has disappeared; while improved, the x-ray continues to show the duodenal deformity.

Many phases of the etiology, evolution, course and chronicity of peptic ulcer are still to be understood. The relapsing course, occasioned by definite factors such as nervous strain and stress, dietetic indiscretions, seasonal influences, demands long and careful observations extending over a period of years before complete cure can be affirmed. Spontaneous remissions and relapses are often part of the natural history of this disease. It is obvious, then, that clinical experience demands extreme caution in the evaluation of permanent cures by any form of therapy. It is generally accepted that in a very large percentage of patients, the various forms of operative and non-operative treatments have demonstrated inadequacy both as regards relief of symptoms and temporary and permanent cure. This amino acid treatment in our series, as far as the time factor permits of comparison, has proved much more satisfactory than the various modes of accepted ulcer therapy. This statement is permissible because more liberal diets were employed without associated medication.

It is very difficult to evaluate the mode of action whereby histidine produces the beneficial result. Weiss and Aron expressed the opinion that histidine promotes, restores and maintains the epithelial integrity of the gastric and duodenal mucosa. The absence of histidine, an essential amino acid not synthesized in the human body, thus produces a metabolic defect which is restored by parenteral injection in this treatment. The possibility of a different mode of action has been investigated by us in studies on ulcer production and ulcer prevention, which are in course of publication. We produced gastric ulcers in rats by repeated injections of histamine dihydrochloride. We also demonstrated

ulcer formation in rats by the use of repeated histamine enemata. These experimental ulcers did not occur when the animals were protected by previous injections of histidine monohydrochloride (Larostidin Roche). These findings suggest first, a working hypothesis for ulcer production; that is, by repeated histamine stimulation, peptic ulcers are produced. Obviously, further scientific investigation is necessary and is now being continued. Secondly, another working hypothesis is permissible, that histidine stimulates the production of histaminase, which inactivates histamine. Gastrin (gastric secretin) action is inhibited, thus reducing gastric juice acidity, gastric secretion and possibly peptic activity. This could explain the change in physical character in the gastric secretion. The diminution in gastric motility could likewise be attributed to this action. Further work is being done to substantiate the rather generous tentative conclusions.

SUMMARY AND CONCLUSIONS

1. Histidine therapy, in our series, did not produce any local, focal or general reactions, and we could demonstrate no danger in using this therapy.

2. Pain, eructation and distressing symptoms, in the majority of cases, promptly disappeared.

3. Patients tolerated a liberal diet.

4. The treatment is simple and can be carried out in the ambulatory patient.

5. Aggravation of symptoms by this treatment has not appeared in our series of patients.

6. This treatment is effective especially in postoperative gastrojejunal ulcers.

7. In about 80% of the cases the general nutrition was improved.

8. Radiological evidence of healing was more pronounced in gastric than in duodenal types of ulcer.

9. After a six-months check-up, 79% of the cases were clinically improved, and 21% were considered failures.

10. In this series, as a rule, the percentage of favorable responses varied inversely with the duration of the symptoms.

11. We have discussed a working hypothesis of peptic ulcer production, and suggested a possible mode of action of histidine treatment.

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DIVERTICULA OF THE COLON

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Although Littre[1] described diverticular hernia, in 1700, and Chomel[2] reported the occurrence of pouches of the duodenum, in 1710, the first description of diverticula of the intestine is usually attributed to Sömmering, in 1794.[3] It was not until the last half of the nineteenth century that careful pathologic studies of this condition were reported. The first description of diverticulitis written in English was by Habershon,[4] in 1857, and subsequently there were a number of reports on the postmortem observation of colonic diverticula, either simple or accompanied by secondary changes. Mayo and his collaborators,[5] who, in 1907, reported five cases of proved diverticulitis, were the first to record a group of cases in which the diagnosis was established during life. The first preoperative roentgenologic demonstration of diverticulitis is attributed to Le Wald; the surgical aspects of this case were reported by Abbe,[6] in 1914.

We studied the cases of diverticulitis and diverticulosis observed at the Mayo Clinic in a year. There were 178 cases of diverticulosis (simple colonic diverticula) and 30 of diverticulitis (colonic diverticula with associated inflammatory process). The asymptomatic character of simple colonic diverticula or diverticulosis is attested to by the fact that this condition was found in almost 7 per cent. of the patients who came to necropsy in the same period. In the majority of these cases, the condition had not given rise to any significant symptoms. A similar number of roentgenologic examinations with the barium enema revealed evidence of diverticula. While the original report of diverticulitis during life[5] was based on surgical exploration, the recognition of colonic diverticula in the vast majority of cases is at present dependent on roentgenologic examination.

Colonic diverticula are generally thought to occur predomnantly among males; the ratio of males to females in the reported cases varies from 2 to as high as 7:1. In these reports, a distinction usually is not made between diverticulosis and diverticulitis. In the group of cases under consideration, diverticulosis was found to be almost evenly distributed in the two sexes; but diverticulitis, and particularly the complications of diverticulitis, occurred most frequently among males. It would seem, therefore, that colonic diverticula, like hypertension[7] and many other conditions,[8] are to be viewed with greater concern in the male than it is in the female.

The demonstration of colonic diverticula in children has been reported by several observers;

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the earliest case is apparently that of Finney,[9] in which the patient was a child, aged three years. Interestingly enough, in most of the cases observed during childhood the patients have been boys. The youngest patient in our series was a man, aged thirty years, and the period of greatest incidence was in the latter half of the sixth, and the first half of the seventh decade. Colonic diverticula seldom cause symptoms before the age of forty years, and the development of diverticula is generally considered to be an incident of middle age and the later periods of life.

The etiology of colonic diverticula is a matter of some speculation. It is probable that an inherent weakness of the muscular layers of the intestinal wall is the most important factor; whether this defect is inherited or acquired has not been determined. Many observers state that colonic diverticula most frequently affect obese individuals, but a few note that they may affect thin or debilitated persons. Since in our experience, individuals of normal weight predominate, it is our opinion that in a majority of instances, obesity does not act as an etiologic factor. Constipation and flatulence have been considered to have a causal relationship, but in the series we have studied, the incidence of these symptoms certainly has not been greater than it would be among the general population.

Diverticula are found with increasing frequency in the lower part of the intestinal tract; hence, the largest number occur in the distal portion of the colon. Diverticula are comparatively rare, in the right half of the colon, and most common in the sigmoid. The latter region is, by far, the most common site for the development of secondary inflammatory changes, or diverticulitis and its complications.

Although, as Brown has stated, the presence of uncomplicated colonic diverticula is sometimes held responsible for almost any abdominal symptom, there is no reliable symptom of uncomplicated diverticula, and recognition is dependent on roentgenologic or proctoscopic examination. In a certain number of these cases, a history of previous attacks of diverticulitis can be elicited.

The cardinal symptom of diverticulitis is pain which is usually localized in the left lower quadrant of the abdomen. This is of variable severity and is commonly intermittent or cramping. It is usually associated with irregularity of bowel movements and is often relieved by defecation. It may be accompanied by distention, low-grade fever, moderate leukocytosis, dysuria, and increased frequency of urination. When perforation occurs, pain is more severe and often excruciating, and there is fever which frequently is accompanied by chills. Urinary symptoms are frequent in this group of cases, particularly if the perforation occurs anteriorly. When obstructive tumefaction occurs, there may be either constipation or diarrhea; this condition is frequently and easily confused with carcinoma.

The physical examination of patients who have uncomplicated diverticula of the colon reveals no significant changes. Patients who have diverticulitis usually present tenderness in the left lower quadrant of the abdomen and there often is a palpable mass. When diverticulitis gives rise to obstruction, there is always a palpable mass; in the acute phase, the tenderness may be so marked as to preclude adequate examination. Proctoscopic examination is of definite value, especially in diverticulitis, in the acute phase of which one might fear to give a barium enema. Roentgenologic examination is, of course, the most accurate means for the detection of these lesions.

According to the definition, diverticulosis (uncomplicated colonic diverticula) presents no complication, but a number of patients who have diverticulosis give a history of previous diverticulitis. Diverticulitis may be acute, recurrent, or chronic. Peridiverticulitis, which frequently occurs in association with diverticulitis, may be simple, associated with a variable degree of enterospasm, or may give rise to hyperplasia, with obstruction. Peritonitis probably occurs frequently with diverticulitis, but usually is localized; it may be associated with abscess or perforation. Enterovesical or enterocutaneous fistulas may follow perforation. Rarely, metastatic suppuration occurs. With the healing of a diverticulitis, adhesions may occur, but these rarely in themselves produce obstruction.

The prognosis of uncomplicated colonic diverticula is good. Despite the fact that we were unable to demonstrate any important relationship between diverticulosis and constipation, we

believe that it is best for patients with this condition to follow a bland diet calculated to prevent constipation, with the addition of agar and of mineral oil if these seem necessary. In most cases in which there is a complicating inflammatory process (instances of diverticulitis), patients respond to medical treatment, which includes, in addition to the preceding measures, atropine in the form of tincture of belladonna. Surgical treatment may be urgently demanded in the complications of diverticulitis; usually, all that can be done immediately is to perform a colostomy. The colostomy can sometimes be taken down later, or in some instances, resection of the involved segment may be found necessary.

SUMMARY

The present clinical conception of diverticulosis and diverticulitis is a development of the last thirty years. On the basis of our studies, it would seem that the incidence of colonic diverticula among the general population is somewhat less than 7 per cent., for this was the incidence in two groups in which the condition was diligently sought for. We found that although asymptomatic diverticula were observed approximately equally in the two sexes, diverticulitis and its complications occurred predominantly among males. The greatest incidence of colonic diverticula is in the sixth and seventh decades. We could find no significant relationship between obesity, constipation, or flatulence and the occurrence of diverticula.

Colonic diverticula of and by themselves produce mild symptoms, or there may be an absence of symptoms. The cardinal symptom of diverticulitis and its complications is pain. Diverticulosis itself is a medical condition. In the majority of cases of diverticulitis, the condition responds very well to medical management; surgical procedures are, however, occasionally indicated.

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MANAGEMENT OF LESIONS OF THE FEMALE URETHRA

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The female urethra is a small tubular structure which conveys the urine from the bladder to the exterior. Because the urethra is surrounded by two sphincters, it is the organ of urinary control. It has long served as the passageway for catheters, cystoscopes, and sounds. Not until recently, however, have we realized the importance of urethral lesions as the frequent cause of bladder disturbances in the female. It is hard to understand at times how some of these small, tiny lesions can cause such severe bladder discomfort, frequently intermittent, and recur over a period of many years. Anatomically, the urethra is located within the erotic zone where sensory nerves are numerous and hypersensitive to stimuli. This anatomical arrangement, in all probability, is the explanation for the above clinical observations.

Urethral lesions are an important and interesting phase of urological problems, either in the male or female. We have been particularly interested in the disturbances of the female urethra for the past two years. While I feel that we have barely scratched the surface, there have been some findings which may be of interest to the general practitioner, the internist, the gynecologist and obstetrician, as well as the urologist. Ferreting out some of these lesions, applying adequate corrective measures, will result in a group of very grateful patients.

During the past 15 years many articles have appeared in the medical literature on the subject of urethral disturbance in women. Bugbee,[1]

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Stevens,[2] Folsom,[3] Pugh,[4] and others [5, 6] have contributed valuable papers in the past. Herrold and Ewert[7] have written on this subject during the past two years. An excellent contribution appeared in the British Journal of Urology by Winsbury-White in 1933.[8] Experimentally, injecting india ink into the deep cervical tissues, he demonstrated by postmortem serial section

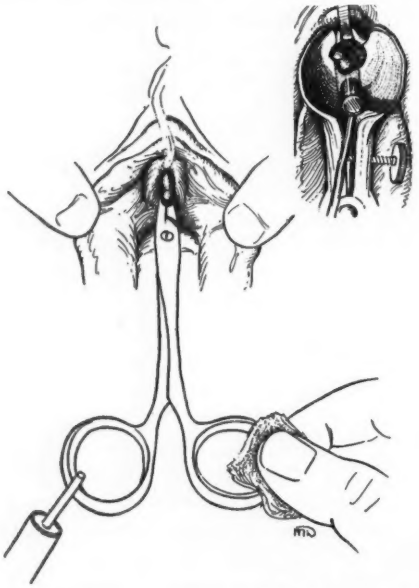

Fig. 1. Mosquito forceps attached to the entire pedicle of the caruncle for fulguration.
Insert. Illuminating speculum for the exposure of the distal urethra.

studies, lymphatic connections between the cervix, base of the bladder and the kidneys.

So, in reality, it is impossible to study this problem solely from a urological point of view. Herrold[9] in a series of 29 patients who had bladder symptoms with cervical lesions, noted improvement in 19 after irradiating the cervical foci. Clinically, we often observe this lymphatic distribution. One of us (LWR) sometime ago treated a carcinoma on the floor of the bladder without doing a vaginal examination. When the intravesical treatments did not have their anticipated effects, further examination revealed a carcinoma of the cervix. This extension into the bladder did not occur by continuity of tissue, but by way of the lymphatics. Many surgeons have observed that operations about the deep urethra or bladder neck may be followed by a troublesome renal sepsis, particularly when the operation is done to correct the result of a chronic inflammatory lesion. Cystoscopically, submucous injection on the floor of the bladder, extending from the posterior vesical lip to one or both ureteral orifices, should be interpreted as evidence of lymphangitis. That the mere passage of a sound into the deep urethra, either in the male or female, may be followed by a chill, and fever and renal tenderness is well known.

One of the most important factors which has been responsible for the more accurate diagnosis of urethral lesions has been the improvement in urological instruments. With the old convex or concave type of instrument, examination of the urethra was impossible. While the angular design aided materially in the passage of these instruments into the bladder, they at the same time precluded an accurate survey of the urethra. With our improved straight instruments the examination of the urethra becomes exceedingly simple and accurate. These same improved cystourethroscopes are equally serviceable for the examination and treatment of the upper tract. In the light of our present knowledge, a cystoscopist who is unable to pass or use a straight instrument is merely lacking in the fundamentals necessary for carrying on a complete urological investigation.

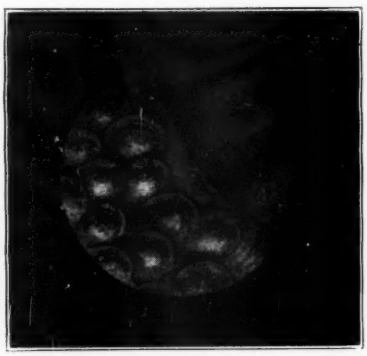

Fig. 2. Cystic urethritis. Numerous cysts in the proximal urethra.

Factors contributing to chronic urethral lesions may be divided into three groups. Group 1: where antecedant urinary tract infections are chiefly responsible; Group 2: where genital tract lesions are chiefly responsible; and Group 3: where both urinary and genital tract lesions are jointly responsible.

In Group 1 an external meatus located high in the vaginal introitus, which is continually bathed in bacteria and infected secretions, may well predispose to urethral infections as well as a small meatus providing poor urethral drainage. Prolapse of the urethral mucosa is necessarily exposed to irritation and infection and always produces symptoms. Coital trauma and urethral trauma, due to masturbation, have been cited by previous writers[10] as obviously producing urethral damage due to chronic irritation.

Acute infection of the urinary tract, as gonorrhea, non-specific infections, including pyelonephritis, concern us here only so far as they may produce an anlage for chronic lesions.

The group of chronic urethral lesions concern us chiefly in this paper. They may result from one acute or repeated acute attacks of urinary tract infection. Among the lesions which we noted were: small fibrosed meatus, infected urethral pockets, skenitis, granular and cystic urethritis, polypoid masses, caruncles, sclerosis of the bladder neck, and one case of urethral diverticulum. Distant foci, as infected teeth, tonsils and sinuses, may affect the urinary tract in the form of interstitial cystitis and urethritis. Cord lesions, due to syphilis, multiple and lateral sclerosis, or trauma may seriously affect normal bladder function and predispose to infections.

In Group 2 cervicitis, due to streptococcus, staphylococcus, colon bacillus, or the gonococcus may be entirely responsible for the bladder dysfunction in the female. It has long been recognized that cervicitis and cystitis are frequent companions. Pelvic infections due to gonococcus or non-specific infections, particularly following abortions, may be the originator of chronic bladder discomfort. How frequently we obtain a history from a woman that "they never had any bladder or kidney trouble until they contracted gonorrhea or had an abortion performed, or both." Pregnancy, especially repeated pregnancies, is a very potent factor in the production of changes in the lower urinary tract. Urethral and bladder trauma or infection, particularly during difficult labors and deliveries, may result in postpartem cystoceles, urethroceles and prolapse.

In Group 3 we have a combination of urinary and genital tract lesions which are jointly responsible for the bladder symptoms. This is, perhaps, the most important group, particularly from the treatment standpoint. Should a urethral lesion be eradicated in the presence of a genital tract infection or pelvic relaxation, only partial relief of symptoms may follow. Temporary relief may be followed by a recurrence. On the other hand, should a pelvic repair be done for a cystocele or urethrocele in the presence of chronic urethral lesions, the surgical result as judged by relief of symptoms can be very disappointing. This point was interesting in this series of cases. Forty-two per cent. of these patients gave a history of a genital or urinary tract infection, or both, for which a pelvic operation or repair had been performed. Therefore, close co-operation between the urologist and the gynecologist is essential in this group in order to obtain satisfactory results.

I would like, very briefly, to present to you a résumé of 89 female patients who on careful urethroscopic examination presented one or more chronic urethral lesions. In a series of 208 clinic patients there were 81 or 38 per cent. who had urethral findings accounting for all, or at least a part, of their symptoms. Of the 89 patients, 80 were white and 9 were colored. Sixty-eight were clinic patients and 21 were private patients, 60 were married, 17 were widowed, separated or divorced, and 12 were single. The average duration of symptoms was 9 years. The average age of onset was 33 years, giving an average age of 42 years for this group.

The most common symptoms were frequency, urgency, burning, and nocturia. Sometimes these symptoms were mild and intermittent, while at other times they were very severe and persistent. Incontinence, due to inability to control the bladder tenesmus, was not uncommon. Many patients were handicapped in carrying out their daily work due to frequent urination. The symptoms were, as a rule, most severe during waking hours and aggravated by physical exertion, riding on street cars or in automobiles; 55 patients had to get up at night to urinate; 18, one to two times; 21, three to four times; and 16, five times to every hour. Twelve patients gave a history of having passed blood in the urine; 3 stated they had passed clots. It would seem that when the cause of hematuria is being investigated in women, urethral pathology should be included as a possible cause. Fifty-three pa-

tients complained of pain, presumably urethral in origin; 30 or 33 per cent. complained of suprapubic or lower quadrant pain; 11 had severe vesical tenesmus, while 9 complained of a high unilateral backache; 3 patients noted the absence of sacral backache after urethral correction.

In the past history, 56 patients or 62.7 per cent. had been pregnant; 13 only once; 13 twice; and 30, 3 or more times. Many of these histories were sprinkled with abortions and mis-

Fig. 3. Photomicrograph of strip of cystic urethritis showing deep periurethral inflammatory infiltraton. (Reduced from x 105)

carriages. Twenty-nine patients denied pregnacy, but gave a history of a previous genital or urinary tract infection. In only 4 patients was there a negative history. Of the cervices which were carefully examined, 50 per cent. showed definite evidence of infection; 26 patients had pelvic relaxations, of which 6 had been repaired.

Before this group of patients was subjected to cystourethroscopy, a careful history was taken and a physical examination was made. The external meatus was inspected. The urethra was palpated vaginally for tenderness and stripped for discharge. Catheterized specimens were obtained for smears and cultures. The amount of residual urine was determined per catheter immediately after voiding. The passage of the catheter at times provoked considerable urethral distress. A 26 F diagnostic bulb was passed for the detection of urethral strictures. After this preliminary survey many of these symptoms and findings pointed to urethral pathology, which was later verified by careful urethroscopic examination. For this routine examination we have preferred to use the 24 F McCarthy cystourethroscope. For intraurethral treatments the panendoscope seems to be the instrument of choice. Our interpretations of the lesions were:

Granular uretritis	46	Polypoid masses	5
Cystic urethritis	32	Infected periurethral glands	3
Caruncles	10	Paraurethral cysts (presumably of Skene's ducts)	2
Small meatus	8	Strictures	6
Diverticulum with stone	1	Vesical neck sclerosis	8
Spastic urethra	1		

As can readily be seen, the majority of these lesions are inflammatory in character. Also, there are more lesions than urethras. Two or more lesions may be present in one urethra, as a cystic urethritis with a vesical neck sclerosis or a small meatus, or caruncle and granular urethritis, and so on.

No patient with acute or hyperacute symptoms was instrumented. They were all treated conservatively and cystoscoped at a later time as indicated.

The possibility of associated upper tract pathology must be constantly kept in mind. Interstitial cystitis, elusive ulcers, or an early renal tuberculosis may have similar preliminary findings and can only be differentiated by careful examination of the bladder and the kidneys. The following were also noted:

Chronic pyelonephritis	19	Nephrotosis	2
Chronic cystitis	10	Cord bladder	2
Hydronephrosis	4	Atony of the bladder	1
Ureteral stricture	3	Chronic nephritis	4
Ureterocele	2	Interstitial cystitis	5
Ureteral calculus	2	Renal tuberculosis	3

The urinary findings were very interesting. The majority of these patients presented a grossly clear, sparkling urine. The sediment often contained only a few white cells or red cells, or both. There were only 13 cases of pyuria. The urine was cultured in 72 cases, of which 13 were sterile. The organisms recovered on culture were:

Staphylococcus	35	Gram pos. and neg. diplococcus	3
Colon bacillus	19	Streptococcus	10
Gram neg. B (not colon)	1	Mixed organisms	16
Staphylococcus aureus	1	Gram pos. B	5

Six specimens contained hyaline and granular casts and sugar was noted only once. Seven-

ty-six patients had a Wassermann test, of which 9 or 11.8 per cent. were positive.

With adequate urological equipment the treatment of these lesions becomes very simple. Surface anesthesia with ½ per cent. cocaine or 1 per cent. diothane has been found to be satisfactory in most cases for examination and treatment. For the apprehensive, nervous woman a

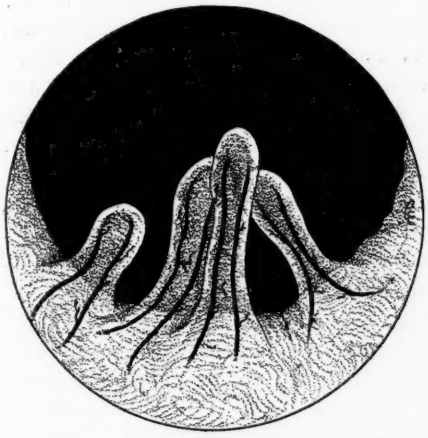

Fig. 4. Polypoid masses in the proximal urethra as seen through a No. 28 F McCarthy panendoscope.

general anesthetic, such as nitrous oxide or ethylene, should be given. Local infiltration with 1 per cent. novocaine is adequate for meatotomies, removal of caruncles and resection of bladder necks.

The following surgical procedures were employed: Meatotomy; removal of caruncles and paraurethral cysts; fulguration of urethral cysts and polypoid masses and infected pockets and Skene's ducts; progressive dilatation of urethral strictures; postoperative dilatation of all fulgurated cases followed by urethral instillation of mild antiseptics. Occasionally massage of the urethra over a sound has been distinctly helpful in the follow-up treatment; diverticulectomy of the one case by Drs. Curtis and Gardner; transurethral resection of the bladder neck in two cases. Of the 8 cases of bladder neck in this series, at least 6 will have to be resected for permanent relief.

The results of our treatments have been rather encouraging. However, only 75 cases were treated:

Symptom free .... 28 or 37% Markedly improved. 34 or 46%
Slight improvement 10 or 13% No improvement... 3 or 4%

Whenever the passage of a 24 F cystourethroscope is apt to be painful a meatotomy should be done. This is, perhaps, the simplest of all urological operations. A few drops of 1 per cent. novocaine may be injected into the posterior lip of the meatus. A mosquito forceps is then applied to the intended line of incision and the tissue firmly crushed. After the forceps have been removed the crushed area is incised with a scalpel. This will control postoperative bleeding and prevent healing. A meatotomy will also greatly facilitate the examination of the distal urethra, which in some cases is extremely important. Postoperative sounds will be less painful.

For some time we removed caruncles by the method described by Bumpus.[11] With his technique we found it difficult to expose the upper limit of the tumor pedicle in all cases. This is

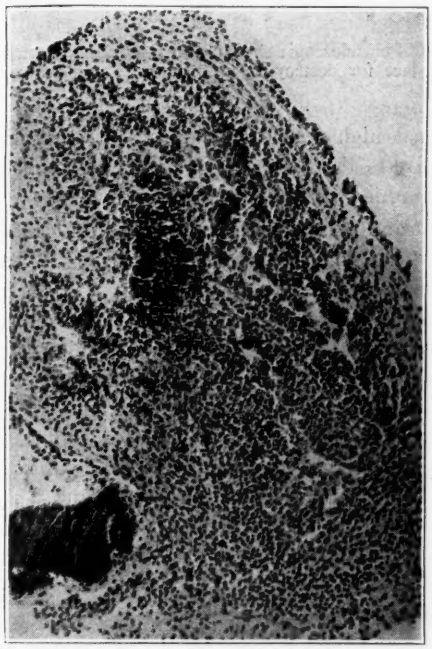

Fig. 5. Photomicrograph, cross section, of polypoid mass showing chronic inflammatory tissue and the large peripheral vein.

particularly true in conjunction with a small meatus. We now remove caruncles with a modified Bumpus technique (Fig. 1). The tumor is well exposed with a nasal speculum to which a small electric bulb has been attached. With better exposure complete removal of the tumor be-

comes rather simple by any method chosen by the operator. We prefer to grasp the entire pedicle with a mosquito forceps, remove the excess for microscopic sections, place a damp strip of gauze about the forceps for the protection of adjacent tissues, and apply the active electrode directly to the forceps until the base is thoroughly desiccated. The forceps is then removed and the speculum re-inserted. If necessary, additional high frequency may again be applied directly to the base under vision. Troublesome bleeding is rarely encountered.

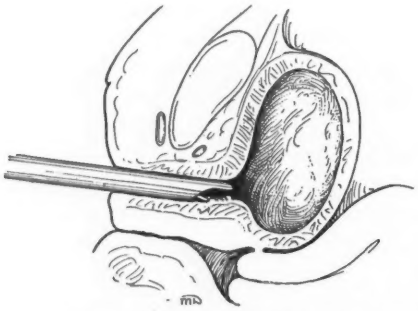

Fig. 6. Panendoscopic sheath with fulgurating electrode in place for destroying urethral cysts and polyps.

Routine microscopic sections should be made. Counseller and Patterson[12] reporting 12 carcinomas of the urethra, stated that 3 or 25 per cent. gave a history of a caruncle which had been previously removed. One of our unimproved patients had a caruncle removed without relief of symptoms and presented a recurrence in one month. This recurrent tumor had an infiltrated base and carcinoma was suspected. Unfortunately we lost tract of this patient and a section of the original tumor was not made. While a true caruncle is regarded as an angioma, other varieties have been described,[13] particularly granulomas.

Adequate exposure of the distal urethra will also materially aid in the detection and treatment of infected urethral pockets and Skene's ducts. Urethral pockets, when infected, appear as pinhead-size white areas, into which a small blunt probe may easily be inserted. They are effectively destroyed by touching the probe with the high frequency current. The opening of Skene's ducts are at times well hidden within the meatus. With such a location, when infected, they can very easily escape our attention on just a casual inspection.

Cysts are found in the proximal urethra on the floor or lateral walls, or both. There may be only 4 or 5, but occasionally the urethra is packed with them (Fig. 2). They appear as transparent, pinkish, grape-like masses attached to the mucosa. Small blood vessels are seen on their surface near the base. These cysts are the result of periurethritis with cystic degeneration of the submucous glands. On several occasions one of us (LWR) has tried to remove a piece of cystic urethra for microscopic study with the resectoscope. Apparently due to the permeation of the heat through the thin sections the cysts were destroyed. From these sections, however, we were able to demonstrate marked submucous inflammatory infiltration (Fig. 3).

Polypoid masses (Fig. 4) occur in the proximal urethra and are white to pink in color, freely movable with the irrigating fluid, and attached to the mucosa by a long stalk. Large blood vessels may be seen along the periphery and extend nearly to the distal tip. Microscopic sections (Fig. 5) of these masses reveal granulation tissue with large peripheral vessels. It is not hard to understand how a spontaneous rupture of one of these vessels may result in considerable hematuria.

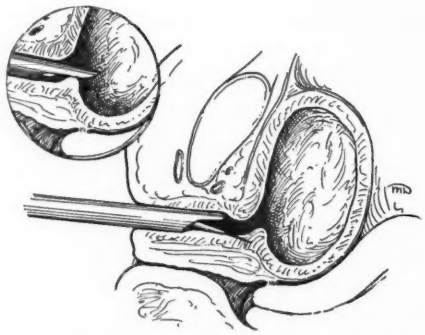

Fig. 7. Local infiltration of the bladder neck before transurethral resection.
Insert. Shows resectoscope in place

Regarding the treatment of these cysts and polyps, they are very easily destroyed with a fulgurating electrode through a panendoscope (Fig. 6). Associated granulations were frequently noted. Only 9 cases of marked granular urethritis were treated with a weak high frequency

current. The current should be of such low intensity so as not to stick to the mucous membrane. Granular urethritis, which was noted, varied from mild injection to marked areas of granulations. They are merely evidence of a deep peri-urethritis. Gradual dilatation of these urethras with a Kollman will usually effect a cure. Five to 10 per cent. silver nitrate application is often helpful in the treatment. All post-fulguration cases, after a three to four weeks interval, were treated with sounds and urethral instillations. The average caliber after dilatation was about 35 F.

All of our stricture cases were amenable to progressive dilatation treatment. Undilatable strictures should be cut, preferably with an electro-urethrotome.[14]

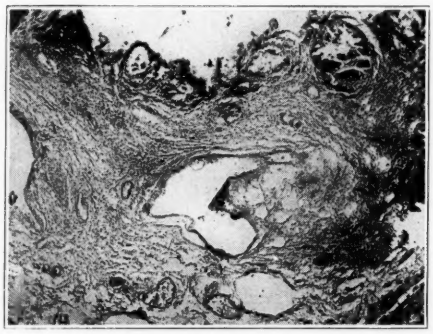

Fig. 8. Photomicrograph of a section removed from a contracture of the bladder neck showing infection of the submucous glands and chronic inflammatory edema. (Reduced from x 105)

Regarding sclerosis of the bladder neck, Caulk[15] first called our attention to this condition in the female in 1921, and reported a case which he had punched with a good result. Keyes[16] and others have touched upon this subject. It is a timely question whether or not this important clinical entity has received the proper emphasis. It has been shown that the proximal urethra in the female and the retromontane urethra in the male are homologus and are derived from the same embryological structures. We admit that 10 to 15 per cent. of bladder neck obstructions in the male are due to inflammatory change. Then, why should not similar changes occur in the female bladder? In 1933 Nesbit[17] reported three cases which he had resected transurethrally with excellent results. Renner,[18] by careful examination of female postmortem bladders, has demonstrated the submucous glands along the floor of the proximal urethra and bladder neck. Folsom has repeatedly called our attention to the importance of these glands in the presence of chronic urethral infections. Where all other treatments have failed, and in the presence of a contracture or median bar with residual urine and a trabeculated bladder, it would seem that a transurethral resection should be done. In a properly chosen case, it is surprising how a transurethral revision may alleviate all of the bladder symptoms. Thus far, we have resected two cases with excellent results. This operation may very easily be done under local novocaine infiltration anesthesia. In our hands, a Hayem's cystoscopic catheter used through a panendoscope has been found adequate equipment for this infiltration anesthesia (Fig. 7). The sections removed should not be cut too deep on account of the close proximity of the anterior vaginal wall. The removing of 2 to 4 sections will usually suffice. This operation will not only remove the obstruction, but will also remove the chronically infected suburethral and subcervical glands. Resectoscopic microscopic sections (Fig. 8) reveal inflammatory changes of the submucous glands and deep suburethral tissues.

SUMMARY

A résumé of 89 patients with chronic urethral lesions is reported. Cystourethroscopic examinations revealed one or more lesions which accounted for all or at least a part of the bladder symptoms.

With a careful history, physical and urine examination a diagnosis of urethral pathology may be suspected.

The absence of urinary sediment, with or without residual urine, in the presence of long-standing bladder discomfort, is an indication for a complete urological survey, including the entire urethra.

With appropriate instruments and therapeutic measures the detection and correction of urethral lesions have become exceedingly simple and accurate.

Suburethral chronic foci, at least in some cases, are responsible for recurrent pyelonephritis.

In patients with a chronic urinary sepsis a contracture of the bladder neck may be present.

When a contracture is present, it should be removed surgically.

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THE LEUCOPENIC INDEX IN INTRACTABLE ASTHMA

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Intractable asthma is a chronic condition characterized by paroxysms of dyspnea, often severe and particularly pronounced in the expiratory phase, continued indefinitely and usually remaining unresponsive to any form of therapy. The usual history offers few clues to the diagnosis; scratch and intradermal tests are almost always negative; trial and elimination diets and food charts are all too often without effect. Foreign proteins such as milk, peptone as well as autohemotherapy, autogenous and stock vaccines usually result in no improvement. Surgical intervention offers only temporary relief, if any at all; physiotherapy has been of scant value; medication may occasionally alleviate symptoms, but in the final analysis the case is usually classified as a bacterial or infective type of asthma which is unmanageable in spite of every diagnostic and therapeutic procedure available.

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In 1934, Vaughan[1, 2] and later Rinkel[3] described a procedure which the former called the leucopenic index that opens a new avenue of diagnosis in this type of case. This procedure will be briefly described together with its clinical application in intractable asthma. Vaughan observed that following the ingestion of milk in a milk sensitive patient a leucopenia developed, while foods to which the patient was not sensitive were followed usually by leucocytosis. The test is run as follows: the patient reports in a fasting state and after a rest period of 20 minutes a white blood count is taken. The test food is then eaten and 4-6 white blood counts are made at 15-20 minute intervals. The same pipette and counting chamber are generally used and, to eliminate error, five minutes are allowed for settling of the cells in the counting chamber.

The counts thus obtained may be charted in the form of curves of which there are four types. In the presence of leucocytosis the curve usually rises gradually from 1,000 to 4,000 cells beyond the fasting count, but at the end of 80 or 100 minutes it gradually again approaches the fasting count. The food producing this type of curve is considered as being non-allergic, although not always, and is referred to as being in positive balance. If there is a leucopenia the white blood count drops gradually from normalcy through 4,000 to 1,000 cells and at the end of 80-100 minutes its rise is observed again, attaining to the fasting count. This curve is assumed to characterize sensitization to the food in question and is referred to as being in negative balance. The third type of curve is one not subject to fluctuation, one way or the other, more than 1,000 cells. The fourth type of curve shows wide and frequent fluctuations above and below the fasting blood count. The latter two types are difficult

to interpret and may be repeated at a later date when more definite counts are obtainable.

In some of the curves offering difficulty to interpretation a composite curve may aid in the analysis. This is a line drawn from the fasting blood count to a point representing the average of all subsequent counts, and denotes the general tendency and degree of fluctuation. It is well known that skin tests in allergy are of value in only 45-50% of the cases, that negative tests do not rule out a given allergen, nor do positive tests necessarily indicate sensitization. This applied in general also to the leucopenic index, except that the accuracy is greater than with skin tests. It has been found that foods giving a positive balance and presumably not a cause of symptoms may, nevertheless, give rise to allergic symptoms. Similarly foods giving a negative balance and suggested, therefore, as an etiologic factor do not always manifest clinical allergy. This, however, is not the rule but should be borne in mind whenever satisfactory progress is not being made. By means of leucopenic indices foods not even suspected of being the cause of symptoms are frequently demonstrated as etiologic factors.

This report includes 106 leucopenic index determinations performed on 12 patients in whom the usual diagnostic procedures failed to reveal sufficient findings to effect relief of symptoms. A food capable of producing allergic symptoms is referred to as being clinically positive regardless of whether the various tests are negative or positive. Similarly a food which does not produce allergic symptoms is called clinically negative, even though skin tests may be positive. Of the 54 proven clinically positive instances 37 revealed negative skin tests with a decrease in the white cell counts of more than 1,000 cells. This represents 34.91% of the total number of cases tested and 68.52% of the clinically positive cases. An increase in leucocytes with proven positive clinical response but negative skin tests was presented in 12 foods (11.32%) of the total number and 22.22% of the clinically positive instances. In 3 clinically positive foods the leucopenic response correspond with the positive skin test while in 2 clinically positive foods an increase of leucocytes with positive skin tests was noted.

Of the 39 clinically negative instances 23 (21.70%) of the total number (106) tested revealed a digestion leucocytosis associated with negative skin test. Six clinically negative foods with positive skin tests also showed a leucocytosis, while one revealed a leucopenia. Nine clinically negative foods revealed a leucopenia with negative skin tests.

TABLE 1

RELATION OF SKIN TESTS AND CLINICAL RESULTS IN 106 LEUCOPENIC INDICES DETERMINED ON 23 COMMON FOODS

Skin tests positive.....	12	instances.....	11.32%
Skin tests negative.....	94	instances.....	88.68%
	106		100.00%
Clinically positive.....	54	instances.....	50.94%
Clinically negative.....	39	instances.....	36.8 %
Not tried clinically.....	13	instances.....	12.26%
	106		100.00%

TABLE 2

ANALYSIS OF 106 LEUCOPENIC INDICES IN 12 CASES OF INTRACTABLE ASTHMA

Blood Counts		Clinical Tests		Skin Tests		
Leucopenia	Leucocytosis	Positive	Negative	Negative	Positive	Percentage
37	..	37	..	37	..	34.91
..	12	12	..	12	..	11.32
..	2	2	..	..	2	1.89
3	..	3	..	..	3	2.83
..	6	..	6	..	6	5.66
9	..	..	9	9	..	8.49
..	23	..	23	23	..	21.70
1	..	..	1	..	1	0.94
..	13	..	..	13	..	12.26
	Not tried clinically			Not tried clinically		
Tot. 50	56	54	39	94	12	100.00

TABLE 3

ANALYSIS OF 106 LEUCOPENIC INDICES IN 12 CASES OF INTRACTABLE ASTHMA

Clinically positive foods—54 instances		
Leucopenia with negative skin test.....	37	68.52%
Leucopenia with positive skin test.....	3	5.56%
Leucocytosis with negative skin test.....	12	22.22%
Leucocytosis with positive skin test.....	2	3.70%
	54	100.00%
Clinically negative foods—39 instances		
Leucocytosis with negative skin test.....	23	58.97%
Leucocytosis with positive skin test.....	6	15.38%
Leucopenia with negative skin test.....	9	23.09%
Leucopenia with positive skin test.....	1	2.56%
	39	100.00%

It will be noted from the above figures that of the foods tested the skin tests were positive in only 12 instances (11.32%) and of these 5 were positive and 7 negative clinically. In 94 instances (88.68%) the skin tests were negative and of these 49 foods (46.22%) were positive, and 32 (30.19%) were negative clinically, while 13 (12.26%) were not tested clinically. In three clinically positive foods and 23 clinically negative foods the blood counts corresponded with

the skin tests and clinical findings; 12 clinically positive foods with negative skin tests revealed an increase in leucocytes and 2 foods with positive skin tests also revealed increased leucocytes. Deducting these 14 instances (13.22%) of the total number tested from 37 (34.91%) clinically positive instances with leucopenia and negative skin tests, there is an increase in the diagnostic percentage available by the use of the leucopenic index of 21.70% over the skin tests. No interpretation is attempted of the 16 clinically negative instances in which the leucocyte count and skin tests did not correspond. Following are case reports illustrative of the method:

Case 1. Mr. E. W., aged 44, office executive, was seen first in August, 1934, complaining of paroxysms of coughing with expectoration of 20 years duration, present the year around. Ten years ago difficulty developed in breathing, diagnosed as asthma, constantly present, relieved by adrenalin and ephedrine. He had taken medication of various kinds, had changed climate frequently and has had skin tests several times followed by treatment, but had obtained no relief. He is worse in damp weather. The past illnesses included measles and pneumonia in childhood and tonsillectomy in 1919. All teeth absent. No history of allergic manifestation in family. Examination in August, 1934, revealed essentially a dyspneic patient with an emphysematous chest and numerous musical rales. The blood count was normal, blood Wassermann negative, urine revealed no abnormality. The usual skin tests, both scratch and intradermal, revealed no findings of significance. Trial diets afforded some relief. In October, 1934, a series of leucopenic index studies were made and on this basis he was placed on a diet of wheat, sweet potatoes, asparagus, celery, pears, peaches, lettuce and lamb. He improved ostensibly. Meanwhile the leucopenic index of peaches was found to be definitely in the negative phase. Removal of peaches resulted in further improvement. Irish potatoes, although in the positive phase, provoked asthma clinically. Wheat could be eaten in moderation, but when ingested excessively was followed by asthma. He has remained free of asthma, can now tolerate extremes of temperature, and is able to perform physical exercise without dyspnea for the first time in years.

Case 2. Mr. N. N., aged 44, carpenter, was seen first September, 1934, presenting a history of asthma of 2½ years duration. It was constant, not relieved by adrenalin. Prior to the development of asthma he was subject to paroxysms of sneezing, nasal blocking and coughing of 15 years duration during which time he had 5 nasal operations without relief. There was no allergic history in the family. Scratch and intradermal tests revealed a few mildly positive tests the application of which resulted in no clinical improvement. Vaccine therapy, the removal of suspected inhalant factors, and dietary management likewise offered no relief. In October, 1934, on the basis of leucocyte counts he was placed on a diet and within a week his cough decreased 75% and the asthma stopped completely. Rice and celery which were not seriously suspected as causes of asthma gave definite leucopenic indices in the negative balance the significance of which was proven clinically. Milk, eggs, sweet potatoes and tomatoes also produced leucopenia and asthma clinically. Wheat and orange juice were tolerated in small amounts, but when larger quantities were ingested, asthma followed.

Case 3. Mrs. H. B., aged 37, housewife, seen in November, 1934, presented a history of hay fever every fall for 30 years. Asthma developed first at 20 years of age, has terminated the hay fever season in the past ten years, but in the last 2 years has been constant. Her allergic symptoms were always better during three pregnancies, but became very much worse after delivery of the first baby in March, 1925, and the second baby in December, 1926. Contact of horses, dogs and cats produced asthma within a few minutes. There was no history of asthma or other allergic signs in the family. Skin tests were markedly positive to so many foods and inhalants that it was difficult to establish a maintenance diet on this basis. Tests to wheat and milk, however, were negative. Symptoms did not improve appreciably and before the exclusion of these foods leucopenic index determinations were made and found to be strongly in the negative phase. Upon removal of these from the diet together with other eliminations asthmatic attacks stopped.

Case 4. Mrs. H. R., aged 28, housewife, complained of sneezing, nasal blocking, running nose, cough and loss of the sense of smell and taste of 15 years duration. Symptoms were worse during and for several months after pregnancy, also from August 15 until frost. Asthma developed in the fall of 1933, and has been constant since. Scratch tests were all negative, but intradermal tests disclosed moderate reactions to ragweed, wheat, the citrus fruits, chocolate, several vegetables and pork. Clinical trial demonstrated that pork, wheat and milk produced asthma within an hour and, while asthmatic symptoms were much subsided, she was not entirely well. On the basis of leucopenic index studies potatoes and tomatoes were taken from the diet with complete relief from symptoms.

TABLE 4

THE LEUCOPENIC INDEX IN 12 CASES OF INTRACTABLE ASTHMA
SUMMARY OF RESULTS

Case	Foods No. of Tested	Leucocytosis	Leucopenia	Clinical Results: Good	Fair	Poor
1. E. W.....	12	7	5	..	1	..
2. N. N.....	10	5	5	..	1	..
3. H. B.....	12	8	4	..	1	..
4. H. R.....	6	4	2	1	..	..
5. M. A.....	4	..	4	..	..	1
6. A. T.....	13	2	11	..	..	1
7. V. K.....	6	5	1	1	..	..
8. P. K.....	7	3	4	..	..	1
9. H. F.....	8	5	3	1	..	..
10. F. E.....	10	6	4	1	..	..
11. F. M.....	9	6	3	..	1	..
12. B. T.....	9	5	4	1	..	..
Totals	106	56	50	5	4	3

Five of the twelve cases of asthma eventuated in good results clinically. Of these three had responded fairly well to the usual allergic measures, but after utilizing information gained by the leucopenic index determinations improved to the extent of being classified under good results. The remaining two cases presented no improvement whatsoever prior to leucopenic index determinations. Four cases in which fair results were obtained had shown no clinical improvement until food eliminations based on leucocyte counts were made. In three of the twelve cases of asthma no improvement was obtained. One of these failed to disclose a single food producing blood counts toward the positive phase. The remaining two failed to respond clinically even after eliminating foods with leucocytic indices in the negative phase.

CONCLUSION

The leucopenic index is a diagnostic procedure which does not displace the usual diagnostic allergic methods, but is considered an adjunct of particular value in the intractable type of case.

It is suggested that a good proportion of so-called intractable or chronic cases of asthma heretofore often regarded as based on infective or bacterial allergy, in reality result from a complexity of multiple food sensitizations. This sensitization to foods may be so inclusive as to involve all foods in some instances, but usually one can determine a sufficient number of foods which the patient may tolerate to maintain caloric and dietary requirements and remain free of symptoms.

In this series of counts leucopenic index determinations appear to have about 21% more diagnostic value than a corresponding number of skin tests. There may be a definite leucopenia following ingestion of a food which does not produce clinical allergy. In a few instances leucocytosis followed ingestion of a food subsequently found to be a cause of symptoms. The various trial and elimination diets, while effective in some instances, often include the very foods which produce symptoms and can, therefore, not be accepted as ruling out food factors in intractable asthma.

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DISCUSSION

DR. HERBERT J. RINKEL, Kansas City, Missouri: Dr. Zeller has given a conservative and reliable report concerning the value of the leucocytic response in intractable asthma. His figures agree with those of Vaughan and with those of my own experience, both as to the increased value over skin testing and in the per cent. improvement in results.

The treatment of intractable asthma has been and still is one of the most difficult problems in medicine. During the past few years great progress has been made, chiefly due to the knowledge that intractable asthma does not necessarily differ from occasional or mild asthma except in degree and multiplicity of sensitizations. The intractable asthmatic is an allergic individual sensitive to things he eats and things he inhales, the same as his more fortunate brother who has asthma only from a few foods or inhalants.

The leucocytic response which has been detailed here today is probably the newest diagnostic procedure in allergy and as shown by Dr. Zeller is very valuable in intractable asthma. To the serious student of medicine its objectionable features, i.e., the length of time required for the test and the necessarily long period of time over which it must be used, are more than compensated for in the fact that an additional per cent. of these patients can be relieved.

For the physician who wishes to apply these tests in his work, I should like to emphasize the following points:

First, the preparation of the patient. It has been shown that exercise, emotional states, as well as the preparation and rate of eating the food, will all affect the count; therefore, these must be made a constant.

Second, adopt a standard time interval of counting and become familiar with the curves obtained in a series of clinically controlled cases. The slide indicates the difference in the graph if counts are taken at 10 or 20 minutes.

Third, there is no normal control. If one will run these tests in the seborrheic individual, the acne patient or an individual afflicted with trachoma, he will find that they too have leucocytic responses, either positive or negative, the same as the asthma or hay fever patient. The important consideration is that in the allergic individual the food that gives a positive response does not provoke symptoms at that time. This statement would suggest that the test is an invaluable one and that with its aid one could in a relatively short period of time analyze all food allergies. Therefore, certain other facts should be emphasized.

The leucocytic response is not constant. (Slide) As you will note in the graph, the curve "1a" which is a negative leucocytic response to carrots, changes two weeks later to curve "1b," which is an indifferent reaction and one month later to curve "1c" which is a

definite positive reaction and at the time of the last test the patient had asthma following the ingestion of carrots while formerly he suffered no ill effects.

Curve "2a" and 2b illustrate the reverse change. The first curve is a positive response to pork associated with violent symptoms, the second is the response to pork after elimination for four months. At the time of the second test there were no asthma symptoms and the patient ate the food for two weeks before symptoms recurred.

Curve 3a and 3b illustrate the same changes to rice in a patient with migraine. The two counts were made three weeks apart.

It must be thoroughly understood that the change from a negative leucocytic index to a positive one may occur within a short period of time. In one patient with asthma an adverse reaction developed within 48 hours after pineapple was started in the diet. Clinical findings likewise changed in this period of time, there being severe asthma with the fourth eating of pineapple. Again, the response may be quite constant over a long period of time, in one case the response to carrots being practically identical over eight months time.

Another important fact that Dr. Zeller has mentioned is that in certain asthmatics there will be no foods giving a negative leucocytic index or if such reactions are obtained, they are not constant long enough that one can successfully apply the results of the tests. The exact nature of these cases is yet to be determined.

In a series of studies to determine the accuracy of the count, the following findings were obtained:

First, in 45 instances of known food allergy there was a drop in the white blood cells from 200 to 5,800 with an average loss of 1,538 cells.

Second, in these same patients, 40 foods known to be without effect allergically produced an increase of the white blood cells in every instance, the increase being from 200 to 8,000 cells with an average of 1,685.

Third, a patient with migraine lost an average of 1,800 cells with 17 different foods and responded clinically with elimination of these foods. A patient with perennial vasomotor rhinitis lost an average of 1,300 cells with 12 different foods and upon elimination of these foods along with inhalant measures responded clinically.

Fourth, a patient with a mild hacking cough repeated at three to eight minute intervals unless controlled with adrenalin was suspected of being sensitive to lamb. A correlation of the clinical symptoms (cough) over a four hour period and the leucocytic responses are illustrated in the slide.

Fifth, a patient sensitive to banana was fed wheat, carrots, banana and tea at two hour intervals and the clinical symptoms recorded throughout the day. The correlation between the blood response and the symptoms are illustrated graphically, there being positive leucocytic responses to all foods except banana and its elimination produced prompt clinical improvement.

It is our conclusion that the leucocytic response has a permanent place in the diagnosis of food allergy.

ROENTGEN STUDY OF LESIONS OF THE *URINARY BLADDER*

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In the presentation of this subject, it becomes necessary to incorporate pathology and symptomology. The cooperation of all those associated with a certain case is of the greatest importance to arrive at a correct diagnosis. Our assistance to the urologist is unquestionable and we are fortunate to have their cooperation. Many of these cases have to be studied from different angles and positions which necessitates several films.

In 1902 we have the first study of the bladder by Roentgen ray, followed by rapid advancement to the present time. During 1904 the study was made of diverticulum by the air cystogram. By 1906 the first cystogram by the injection of opaque media was obtained, and today we have methods of examining the whole urinary tract by Roentgen ray.

Urethrocystography in the male has the same applicability as ureteropyelography in the upper urinary tract, especially in tumors of the bladder, strictures, abscesses and prostatic hypertrophy.

The cystoscope usually detects the presence of tumors, but there are cases where the cystogram is of more value, especially in those tumors involving the bladder floor or near the urethral opening.

If the bladder contents should be cloudy or there is any difficulty in observing the lesion, we must depend on the film study. Sometimes, additional information may be obtained where a calculus is present in a diverticulum as seen by the cystoscope. The size and exact location have to be shown and often the opaque media will surround the calculus outlining the diverticular wall.

It is important to use media of different opacity. If it is too opaque, the lesion will be superimposed and not seen, then it becomes necessary to use a lighter opaque medium.

Valuable information is obtained by a 2 or 3% sodium iodide. It shows the displacement on comparison between the medium and the tumor. The position of the patient often has a

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great deal to do with the particular lesion under observation, for instance, the neck of a diverticulum, the shape of a tumor or calculus. While most of the cases outside of diverticula and prostatics are taken in the anteroposterior position, it may be necessary, at times, to change our routine position. The prostatic position will be shown by lantern slides.

In some instances stereoscopic films are made. The information is often exceptionally valuable as one gets the third dimension view. The stereoscopic study on air and opaque cystogram for prostatic pathology is routine. I will go into this more in detail.

In all cases the first film taken is really a general survey for calculi, foreign bodies, hypertrophied kidneys, calcified glands, gas in the colon and metastases to the bony pelvis and spine. Following this survey we take an opaque cystogram using 2 or 3% sodium iodide. If a diverticulum is found, then a view is taken for retention. After thoroughly irrigating the bladder the patient is placed in a 45° angle, especially for prostatic cases with the right leg flexed to 45°, the left leg is straight. The air is introduced by means of a catheter to which is attached a bulb syringe or a pointed glass tube with an atomizer bulb. Air is introduced until the patient feels a pressure sensation. This pressure is continued until we are able to obtain a stereoscopic film.

The pressure is relieved and opaque mixture the consistency of lubricating jelly, made as follows: 25 grams of powdered gum tragacanth mixed with 40 cc. of 95% alcohol and 660 cc. of distilled water. This mixture is placed in the refrigerator over night. If it is autoclaved and kept under sterile conditions it will keep for weeks.

Under sterile conditions 250 cc. of this jelly is added to 60 cc. of lipiodol and enough water to make a satisfactory viscosity. Any smaller amounts may be made by altering proportionately the amounts given.

By means of a short piece of rubber catheter 5 cm. long, attached to a glass syringe of 30 cc. or more capacity, 30 cc. of this jelly is introduced through the urethra into the bladder. Against the remaining air which remains after the air cystogram, 20 cc. of this mixture is introduced when the first stereoscopic film is made. The balance of 10 cc. is further introduced for the second film. The urologist keeps constant pressure against the media during the time the films are exposed. The media is then washed out with sterile water.

Diverticula of the Bladder. Until about 1906 there were only a few cases reported in this country, but since the roentgenographic study of the bladder has been done, the frequency of their recurrence has more often been demonstrated. Our assistance to the urologist, is to determine the size, shape, location and whether or not there is retention in them.

Calculi. The urologist with his cystoscope can generally discover calculi unless they are in a diverticulum. The plain survey film generally reveals their presence before the urologist has introduced his cystoscope, especially if the calculus is of a density and size to cast a shadow. Prostatic calculi are often discovered which would otherwise be impossible for the urologist to see.

Tumors extrinsic to the bladder may produce a pressure deformity.

Congenital anomalies and foreign bodies in the bladder are possibilities. Tubes, bolts, pins and various foreign bodies surrounded by a calcium deposit have been found.

Tumors of the bladder, in a report by Young and Waters, occur four times more commonly in the male than the female. Generally bladder tumors may be divided into three classes: 1. Growths that are of the projection type, such as pedunculated or papillomatous. 2. Those that are more flattened, laying against the bladder wall. 3. The infiltrating type.

There are several groupings of bladder tumors but I believe we should consider all tumors either malignant or potentially so until they are proven otherwise. Benign papillomas, no doubt, become malignant due to the fact a secondary invasion is often found. We are liable to find tumors arising from the prostate, sigmoid or internal genitalia of the female involving the bladder, however, the papillary epithelial tumors form the greatest majority of them.

Benign papillomas are entirely intravesical, but often become malignant, especially in the aged. The malignant changes are characterized by epithelial thickening, loss of orderly arrangement of cells, lack of uniformity in size and

shape, the fusing of adjacent papillae, and the invasion of the bladder near the base of the papilloma. The region of the trigone, vesical neck and base of the bladder are the most frequent locations for vesical tumors. Adenocarcinoma occurs in 1 to 2% of cases.

Sarcoma of the bladder is rare and when found are in the very young. Retrovesical sarcoma is generally found in the area behind the bladder and above the prostate. They form a large mass displacing the bladder forward. Fibromas, lipomas and lymphosarcomas are rare. Such tumors as dermoid cysts, teratomas, chondromas, and myxomas arise from embryonic tissue.

The secondary effects of bladder tumors, aside from metastases and cachexia are hemorrhage, calculous formations, obstructions to the urethra and one or both ureters, ulcerations, necroses and infiltration of the bladder wall. This last may occur by neoplasm of the prostate. Do not lose sight of the fact that in difficult cases a study of the intestinal tract is important.

In tumors of the prostate, the Roentgen ray plays a very important part in the diagnosis and treatment. The most common tumors of the prostate are adenomas, hypertrophies and carcinomas.

In hypertrophy of the prostate we are able to show the projection into the bladder, whether it is a median or lateral lobe involvement. When the urologist finds it impossible or difficult to carry out his examination through the cystoscope, we find he depends upon us to assist in the diagnosis.

Prostatic calculi may cause the gland to feel nodular and simulate carcinoma, when the film will often show it to be calculus.

Carcinoma of the prostate does not usually cast any more of a shadow than an ordinary hypertrophy, but it will often show the metastases to the bones. In all probabilities 30% of carcinomas of the prostate have metastases at the time they seek medical aid. The induration is of a stony hardness on palpation. Bone metastases, according to MacCullen, have the following pathological changes: the cancellous portions of the bone are replaced by tumor cells, having a selective stimulating effect, causing an excessive amount of dense and hard new bone formation. Microscopically the lamella of the cancellous bone becomes enormously thickened and the marrow spaces are narrowed. The spaces become filled with tumor cells which exclude the bone marrow, and the almost complete destruction of the bone marrow causes the marked anemia.

Carcinoma may involve any lobe and the possibility of leaving the capsule behind enucleating, may provide the starting point for a malignant change. One cannot be too careful to have a surgical gland thoroughly examined microscopically. Many sections that appear to be simple hypertrophy may be malignant. When we find in literature that one out of every four or five prostatic obstructions are malignant, it behooves the urologist to safeguard his prognosis, but in our experience these figures are rather high. Carcinoma here, as elsewhere, must be diagnosed as early as possible if we are to prevent metastases.

Many of us are careless, possibly not intentionally, but in the rush of daily routine we fail to make a thorough study of the case and omit the rectal examination. If we will make it a routine to examine every prostatic per rectum in patients 50 years of age or more, we will be surprised to find more evidence of pathology.

Traumatism to the bladder is not so common, but with increasing accidents, it has an important part in bladder injuries. Fracture of the pelvis or a piece of bone may cause perforation and tears. While immediate cystograms are undesirable after trauma, later they may show the result of the injury as extravesical pouches, diverticula or fragments of bone in the bladder.

Symptoms of trauma to the bladder are: hematuria, frequency, pain, dysuria, passage of tumor fragments, pus or calculi, symptoms which should at once suggest investigation of the urinary bladder. Hematuria occurs in 75% of tumor cases. Pain, however, is often absent.

Because of the absence of pain and in the presence of any hematuria a thorough investigation as to its origin must be made. Even if other symptoms are lacking, delay allows the tumors to infiltrate and become malignant or incurable. While the roentgenograms are of little value in very small tumors, nevertheless they should be studied; of course the larger the tumor, the more evidence of it can be shown.

The following describes the method of pros-

tatic study in our six film cystourethrogram: 1. Plain. 2. Antero-posterior cystogram with 2 or 3% sodium iodide solution. 3 and 4. Stereoscopic air cystogram in the 45° angle, and 5 and 6. Stereoscopic opaque cystourethorgram. In a 45° angle using the 30 cc. of lipiodol gum tragacanth mixture. The information obtained, if normal, is no prostatic defect in the antero-posterior cystogram.

In the cystourethrogram the sphincteric impressions are clear cut. The position shows the internal urethral orifice; the shape and length of the urethra; the filling defect in the prostatic urethra produced by the verumontanum. The miscellaneous conditions found are: urethral stricture, periurethral abscess and prostatic abscess.

In prostatic enlargement we have to study: 1. The sphincteric impressions; 2. The length of the prostatic urethra and what proportion is intravesical; 3. Anterior angulation of the proximal portion of the posterior urethra; 4. Constriction of the lumen of the prostatic urethra; 5. The spreading out of the media by compression in the urethra.

The median lobe involvement tends to produce an anterior angulation of the proximal urethra. The size of the lobe and the extension of the distortion can be estimated. The spreading and filling defects in the prostatic urethra indicate pressure by the lateral lobes. If this occurs only in the urethra and not intravesically, there is very little of the lateral lobe projecting into the bladder, but when it occurs both intravesically and intraurethrally, the lateral lobes do project into the bladder.

Circular constriction and elongation of the urethra with no spreading and small flat intravesical defects in the cystogram are often associated with carcinoma. The anterior angulation is only of a small degree. So often carcinoma is associated with hypertrophy that it is difficult to differentiate.

Before closing, outside of the diagnostic aid, we can be of undoubted benefit in the therapy of the bladder tumor. In malignancy we have been able to relieve the pain, produce more comfort, and prolong the life of the patient. The attitude we have, then, toward a carcinomatous patient is relief, prolongation of his life, and hope to inhibit the growth of the tumor.

When a patient is referred to our department we consider the physical and mental conditions and try to improve them. Then we plan our method of treatment. For example, if there has been too much bleeding causing the hemoglobin to drop to 50%, our "r" units are lessened per day. The technique is as follows: 200 K. V., 5 m. a., 50 cm., 15x15 port, 6.2 "r" units per minute. With six ports, 900 "r" units per port.

Conclusion

1. Tumors of the bladder should be studied by the cystogram.

2. A routine examination by means of the urethrocystogram for a prostatic lesion is the most recent method used in making a diagnosis.

3. The general practitioner must not overlook the rectal examination in all male patients 50 years of age or over.

4. Deep x-ray therapy is a method in the treatment of tumors of the urinary bladder.

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DISCUSSION

H. J. Burstein (Decatur): The advances that have been made within the past few years in the field of transurethral surgery have necessitated an exactness of the knowledge of the pathological changes about the bladder neck that was not deemed necessary previously. With the development in urologic instruments, especially in the development of a retrograde lens system for the study of the vesical neck, and with the additional information obtained from newer methods of roentgen examination, the urologist is now able to treat most of the obstructive lesions about the bladder neck by transurethral operation.

With the technique outlined by Dr. Goodwin, the anatomical deformity of the vesical neck and posterior urethra can be determined with accuracy and the secondary bladder changes noted. For the diagnosis of diverticula, the opaque media or sodium iodide cystogram is of greatest value, and with it we can observe their size, depth, and emptying ability. For the latter the injection of air for contrast is of distinct aid. In diagnosing traumatic bladder conditions, I believe that the method of Vaughan and Rudnick of injecting air per catheter is of greater value than the use of opaque solutions. I feel that with the latter the findings are less distinct and for the differentiation of intra and extra peritoneal rupture the diagnoses can be made by the detection of air in the abdominal cavity, similar to the x-ray technique for diagnosis of perforated peptic ulcer.

In carcinoma of the bladder, cystography is a valu-

able adjunct to cystoscopy. The treatment of bladder carcinoma depends on early recognition, situation of the tumor, and degree of malignancy. The small papillary or pedunculated lesions can best be treated by transurethral methods, consisting of tumor removal and electro-coagulation, followed by deep x-ray therapy. In the highly malignant types of bladder tumor, further x-ray developments may offer better prognoses. While an occasional brilliant result is reported with deep x-ray therapy of prostatic malignancy, the results, as a whole, are entirely disappointing. Perhaps further x-ray developments will also be the solution. Transurethral operation for relief of obstruction affords relief in many cases, but the subsequent infections, hemorrhage and recurrence of obstruction that occur so often makes one skeptical of this procedure as the only routine to follow. Some of these cases should have earlier suprapubic cystostomy. For the relief of pain from metatases, x-ray therapy is a valuable aid.

PETROLATUM OIL PNEUMONIA IN AN ADULT

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Lipins deposited in tissues cause an inflammatory reaction, in character depending upon the lipin substance or mixture introduced. Cholesterol compounds, as in Hand-Schiller-Christian's Disease, stimulate a rather definite form of chronic granulation tissue, while other lipins (such as neutral fats or phosphatides) cause inflammatory changes not so obviously characteristic. Paraffin and liquid petrolatum also stimulate chronic granulation tissues. When such oily or lipin substances enter the lungs either by inhalation or through the circulation, chronic granulation tissues are produced. The oil or fat droplets present in these granulation tissues afford a clue as to the etiologic agent. The inflammation induced in the lungs by aspirated oils or lipins has been designated "lipoid pneumonia."

Lipoid pneumonia in man was first described by Laughlen[1] in 1925. He reported the case histories and autopsy findings of three children and one adult. His attention was first called to the unusual microscopic picture of pneumonia associated with large numbers of mononuclear cells which contained unstained vacuoles of various sizes. By the use of sudan III these vacuoles were demonstrated to be droplets of oil. The oil had been administerd as nasal drops to two of the children, but had been given by mouth to one child while it was stuporous. The adult (who had multiple paralysis of the face, arms, legs, soft palate, vocal cords, and accessory muscles of the larynx) was 37 years old and had taken mineral oil by mouth for four and a half months. Swallowing had been very difficult and the oil had been placed far back in the throat to aid the patient in getting it down. Laughlen demonstrated by experiments on rabbits that oil finds its way into the alveoli of the lung when it is administered in the nose and throat in sufficient quantities.

Since this report, there has been one other case reported in an adult by Fischer-Wasels. This was a woman 86 years of age who had used large quantities of paraffin oil with menthol as nasal drops for over twenty years. The clinical picture was that of a progressively malignant pulmonic tumor. Autopsy revealed a massive tumor-like fibrosis involving regions about the hilus of both lungs. Histologic examination showed a dense scar-like connective tissue formation with numerous fat droplets.

There has been a total of 45 (1, 3-8, 10) cases of lipoid pneumonia reported in infants and children up to seven years of age. Of the 45 cases, 34 have been reported within the past year with splendid reviews of the subject by Robinovich and Lederer[6] and by Goodwin[3]. Different types of oils were responsible for the pathology in the reported cases. Milk fat, cod liver oil, and liquid petrolatum were thought to be the cause in most instances. Pinkerton[9] has shown that animal, vegetable and mineral oils are all capable of causing reactions in the lungs, but that they vary greatly in the severity of these reactions. He believes that the free fatty acid content originally present in the oil, and the rapidity with which hydrolysis progresses are the big factors in determining the severity of the reaction.

Neutral vegetable oils (sesame, poppy seed, and olive oil) cause very little reaction in the lungs in the absence of infection. *Animal oils* (milk fat and cod liver oil) may produce a marked consolidation of the lungs in a few days.[9] "The consolidation is found microscopically to be due partly to the presence of large mononuclear phagocytes, which fuse to form giant cells, but principally to connective tissue proliferation. The degree of fibrosis and the rapidity with which it is produced vary considerably with the different oils." *Mineral oil* is quickly emulsified

in the lungs and is soon taken up by many phagocytic mononuclear cells. This causes a consolidation in some areas because of the large number of cells that are packed into the alveoli. In the absence of infection, and unless too much tissue is involved, this reaction may cause no symptoms and the oil-laden phagocytic cells are expectorated or pass through the alveolar wall. They may remain in the parenchyma of the lung or they may enter the lymphatics and be carried

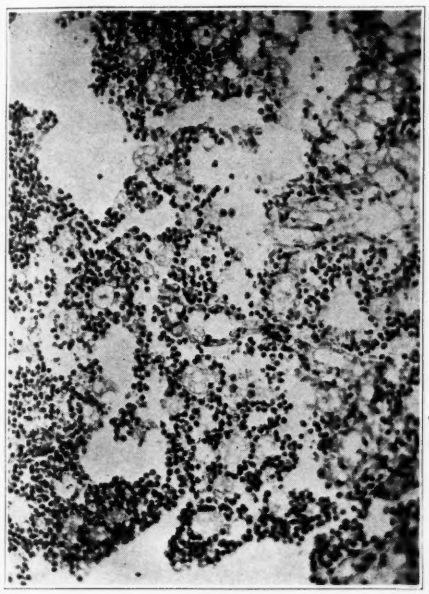

Fig. 1. Acute pneumonic process with mononuclear cells containing oil. There is some polymorphonuclear infiltration.

to the neighboring lymph nodes. The process of healing is by fibrosis and giant cell formation. Pinkerton[9] has demonstrated that with rabbits this healing does not begin for two or three months.

An infection may superimpose upon these tissues infiltrated with oil and the presence of this infection may be a sufficient complication to lead to death. The question naturally arises whether a given patient might not have developed a pneumonia anyway, and this allows one to speculate as to whether or not the oil had any real bearing in the case. The quantity of oil reaching the lung, the kind of oil, the number of times the accident occurred, the amount of lung tissue involved, and the physical condition of the patient at the time of the accident or repeated accidents —these are all factors that must be considered in the final analysis. However, it seems important to stress the point that oil put into the nose or throat can get into the lungs without any cough or obvious symptoms. Also, that oils once reaching the lungs can set up a very definite pathological reaction which can be recognized microscopically. Further, that infection at times does develop around this reaction and the whole process may lead to death.

Many of the infants and children reported with lipoid pneumonia have not been healthy youngsters and one of the two adults reported was bedfast with multiple paralysis. This case occurred in an old man who was up and about and who had demonstrable pharyngeal reflexes. There is no doubt that the lung tissues have suffered repeated insults from mineral oil used as a nasal spray for a great many years. There-

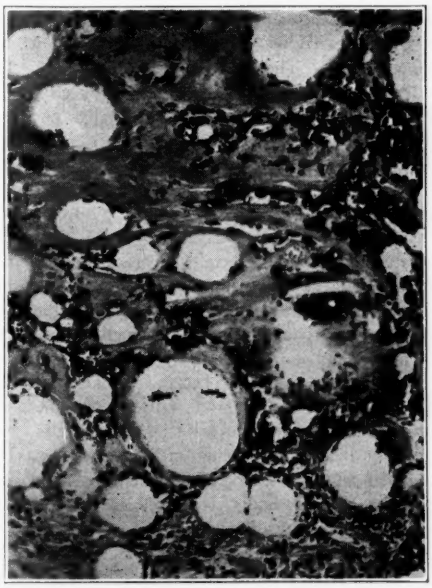

Fig. 2. Old scar with oil included in it.

fore, it seems wise to report the history and autopsy findings, and to point out again that there exists a pathological condition known as lipoid pneumonia which is caused by the presence of oil in the lung tissues.

Case Report. The patient was 96 years of age and had been very well for over 60 years. At the age of 19 he had pulmonary tuberculosis which had been arrested. Sixty years ago he had two or three very profuse pulmonary hemorrhages. Since that time he had had no symptoms referable to his lungs until ten years ago.

During the past ten years he had had two or three periods of hemoptysis each year which lasted four to five days. None of these were of any great size. No cause for this bleeding could be found except the old apical tuberculosis which by x-ray looked healed. The sputum was always negative for tubercle bacilli. The last attack of hemoptysis occurred in March, 1934. There had never been any cardiac history and the blood-pressure had varied between 120/80 and 180/110 for twenty years.

For many years the patient had complained of a dry nasal mucosa and on various occasions he had been given a nasal spray of mineral oil by different doctors. He used this at regular intervals, but it is not known when it was used the last time.

On June 18, 1934, the patient was seen at his home, because he thought he was developing a cold. He had no temperature, nasal discharge, or sore throat. There was a non-productive cough, but this had been a symptom of many years' standing.

He was seen the next three days at his home, but had no temperature or any alarming symptoms. The acute illness began June 25. He had been out during the day attending to business, but in the early evening when he was seen he had a temperature of 103 and looked very sick. There was some cyanosis and effort caused marked dyspnea which had never been present before. Examination of the chest revealed numerous subcrepitant rales over both lower lobes posteriorly, but no abnormal breath sounds. There was no pleural pain or sputum. A diagnosis of bilateral bronchial pneumonia was made.

During the next twelve days, except for a terminal temperature of 102.8, the rectal temperature varied from normal to 101. The lung findings did not increase materially, but rather seemed to clear up over the right lower lobe. The cough was non-productive during the entire illness and no pleural pain was ever complained of. The patient gradually became weaker and died July 6, 12 days after the onset of the acute illness and 17 days after he first began to feel indisposed.

The only laboratory finding of importance was the white blood count. The first count (taken June 26) was 17,500 and this gradually increased until it reached 59,000 (the day of death).

Autopsy. The essential pathology was confined to the lungs. There were a few fibrous adhesions between the left upper lobe and the parietal pleura, and there were extensive fibrous adhesions between the right lung and the parietal pleura which completely obliterated the pleural cavity. The right lung weighed 545 grams and the left lung 585 grams.

The tissues of the left upper lobe were crepitant throughout and the surfaces made by cutting had the usual grey-red color, but there were no obvious regions of consolidation. The lower lobe was heavy and boggy and the upper one-third of the tissues were non-crepitant and firm. On surfaces made by cutting there was the usual red-brown upper portion, but below this the lower two-thirds were consolidated and the tissues were grey-red and wet. In the lower portion of the left lower lobe, the tissues were discolored green-black in a place 6 cm. by 4 cm. by 4 cm. The tissues here were very firm and slightly puckered and contained a large amount of scar tissue. The visceral pleura corresponding to this region was considerably puckered. The lining of the main bronchi opened out to the smaller ramifications and was hyperemic and within the lumen there was a moderate amount of mucopurulent material.

The right lung tissue was moderately crepitant throughout except in the apex. The surfaces made by cutting the three lobes presented a moist red-brown-grey crepitant lung tissue in which there was no gross evidence of consolidation. In the apex of the upper lobe, the lung tissue had been completely replaced by a firm

Fig. 3. Oil and granulation tissue beneath bronchial mucosa.

fibrous tissue 5 cm. by 4 cm. by 3.5 cm. On surfaces made by cutting this mass, there was a firm grey fibrous tissue containing a few moderate sized blood vessels with thickened walls. The lining of the bronchi was hyperemic and the lumen contained a slight amount of mucopurulent material.

Sections were taken for microscopic study from the scar in the right apex, the right lower lobe, the left upper lobe, the left lower lobe, and the discolored area of scar tissue in the left lower lobe described above. The scar in the right apex showed a complete replacement of lung tissue by fibrous tissue. There were large blood vessels with much scar tissue about them, but no evidence of any active or recent tuberculosis was seen. Blood pigment was not observed in this tissue. The left upper lobe showed some areas of fibrosis and a few droplets of oil were observed in the tissue.

The lower lobes showed the greatest changes. In

both there was a great increase in the fibrous tissue of the lung stroma. Enmeshed in this were innumerable droplets of oil. Some of the smaller particles were engulfed in mononuclear cells and appeared as vacuoles in the hematoxylin and eosin stains. The larger droplets were apparently just deposited in the connective tissue. With the Scarlet R. stain in formalin-fixed tissues, these vacuoles and droplets could be demonstrated to be oil with the same staining qualities as mineral oil.

The discolored area of scar tissue in the left lower lobe proved microscopically to be fibrous tissue in which were completely walled off droplets of oil. Carbon pigment was deposited in the different layers of fibrous tissue.

When the microscopic study of the lung tissues had been completed, the diagnosis was changed to lipoid pneumonia, and the long-continued use of mineral oil as a nasal spray was recalled and incorporated in the history. After the gross and microscopic study of the lungs, it is very hard to explain the repeated attacks of hemoptysis on the basis of the old tuberculosis. Although the last attack had occurred just four months before death, no evidence whatever could be found of any signs of activity, and there was no evidence of any hemorrhage in the old healed lesions. The pharynx and the base of the tongue were carefully examined for varicosities and none could be demonstrated. Microscopically, it could be shown that the presence of the oil had produced some lesions that appeared to be very recent (Fig. 1) and others in which the oil was encapsulated by dense scar tissue (Fig. 2). This would indicate that the accident had been repeated over a long period of time. In some of the more recent lesions oil could be found beneath the bronchial mucosa and even up against the capillary walls (Fig. 3). Around some of these areas the tissues were infiltrated with plasma cells and lymphocytes. The question arises as to whether or not an area of this type might have caused bleeding into the bronchi. Certainly such chronic granulation tissue is capable of doing so. No such case has ever been reported that I know of, but I think this possibility might well be considered as the cause of the repeated attacks of hemoptysis.

Note. I wish to express my appreciation to Dr. Edwin F. Hirsch, pathologist at St. Luke's Hospital, for his many suggestions and help in preparing this paper. It was in his laboratory that the autopsy was made and that the diagnosis was first established.

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THE MERITS OF BLOOD TRANSFUSION IN SEPTICEMIA

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First employed in its modern sense during 1490 on the dying Pope Innocent VIII, the art of blood transfusion received its greatest impetus subsequent to the brilliant discovery of the circulation by Harvey in 1616, and the meritorious efforts of Richard Lower of Oxford in 1665 and the London obstetrician, James Blundell in 1834. Thanks are due Prevost and Dumas, Magendie, Brown-Sequard, and Oscar Hasse for their contributions to the physiology of the blood, and Bordet, Erhlich, Arthus, Landsteiner, Hektoen, and others, who contributed to its immunological aspect. The technique of blood transfusion developed by Correl, Crile, Bernheim, Curtis and David, Kimpton and Brown, Ziemssen, Unger, Huston, and others converted its art from a myth three centuries ago to an invaluable weapon against disease.[1]

A remedy par excellence in the acute hemorrhages and the hemorrhagic diseases, blood transfusion has not achieved equal praise in the therapy of septicemia. Its popularity in this regard has ebbed and flowed more or less periodically, many extolling it, many casting it into disfavor. The literature contains many favorable and many unfavorable reports regarding the use

Delivered before the clinical conference of Englewood Hospital, April, 1935.

of blood transfusion in septicemia. Neff[2] reports an infant of 3 months and a child of 3 years of age with septicemia, both of whom recovered after blood transfusion and he also describes two cases of erysipelas treated by blood transfusion, one 3 weeks and the other 6 months of age, both of whom died. Stetson[3] reports 3 cases of streptococcus septicemia, two showing streptococcus hemolyticus in the blood, both dying, and one with streptococcus viridans in the blood surviving. Kordenat[4] summarizes 12 cases of septicemia treated by blood transfusion and in the only two that recovered streptococcus viridans was found in the blood.

In their experience with 212 blood transfusions in 189 cases at Mt. Sinai Hospital, N. Y., Ottenberg and Libbman[5] observed the life saving influence of blood transfusion in 4 of 10 cases of sepsis due to staphylococcus aureus and streptococci, the cases including septic abortion, pyemia, and osteomyelitis of the femur amongst other causes. In the endocarditides they found transfusion a means of rendering the blood bacteria-free not infrequently and they urge that "in prolonged infection transfusion of normal blood may be extremely helpful and should not be too long delayed."

Stetson[6] studying chronic empyema and osteomyelitis on the children's surgical service at Bellevue Hospital, N. Y., remarks, "It is most gratifying to see how well these children do with an occasional transfusion. Their secondary anemia is overcome, their appetite and digestion immediately improve and in a surprisingly short time their wounds begin a healthy granulation. The danger of intercurrent infection is also lessened and their convalescence greatly shortened." In cases of sepsis managed by transfusion the number of colonies of bacteria cultured from the blood decreases steadily in number and ultimately becomes sterilized in a sufficient number of cases to make the method unparalleled. He treated by this method 68 cases of sepsis due to malignant endocarditis, mastoid with sinus and jugular thrombosis, scarlet fever, post partum sepsis, osteomyelitis, sepsis from cervical glands, cellulitis of face, sinusitis, and brain abscess. Of the 39 cases having positive blood cultures streptococcus hemolyticus occurred in 19 with 10 recoveries and 9 deaths, and streptococcus viridans was found in 8 cases, 6 of which were malignant endocarditis and of course fatal. The 7th occurred in a baby who developed sepsis following tonsillectomy and it recovered after 2 blood transfusions. Staphylococcus aureus was found in 12 patients, 9 dying and 3 living. This organism is the deadliest of the infecting bacteria once it has entered the blood stream. Some of this group showed negative blood cultures. Stetson feels that many patients can be saved if blood transfusion is begun early and is given every 48 hours until the blood cultures become sterile and until clinical improvement is sufficiently marked to warrant stopping. Pneumonia and meningitis are the most feared complications of sepsis, and if the patient be so fortunate to escape these he has a 50% chance of recovery with blood transfusions.

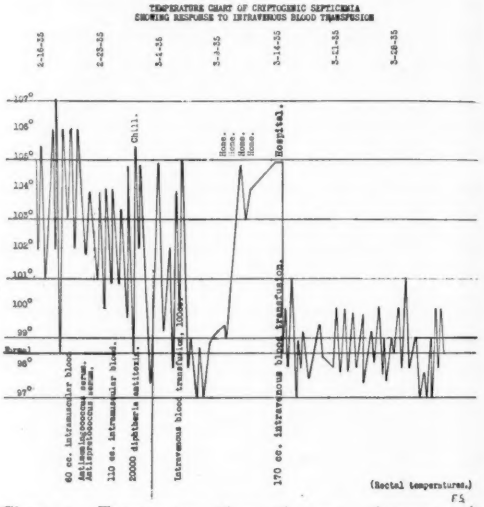

Chart. 1. Temperature chart of a case of cryptogenic septicemia, showing a drop to normal after intravenous blood transfusion

In 1929 the British Red Cross Society[8] announced that of 1215 blood transfusions given by them, "57% showed good or very good results; 22% showed satisfactory improvement; 14% improved and then died and 7% showed no appreciable results." In contrast to this is the report of Polayes and Morrison[9] who analyzed 1500 blood transfusions performed on 1000 patients suffering from various diseases and found 71.7% benefited not at all or doubtfully. Unger[7] remarks that with 29 of his cases suffering from toxemia and sepsis given blood transfusions 9 survived and 12 were temporarily improved.

Landon[10] has analyzed 100 cases of blood transfusion at Francis Willard Hospital, N. Y.,

and concludes that it is valuable as an adjuvant in the pre and post operative care of mastoiditis, sinus thrombosis, and empyema, especially when they occur as complications of scarlet fever and measles. Distinct benefit is observed in bronchopneumonia, complicating measles and pertussis and it is strongly indicated in anemia and malnutrition. Hays[11] declares that transfusion bestows a wholesome effect upon diseases of the mastoid often precluding surgical measures.

The reports of Hebert,[12] Steel,[13] Little,[14] Wekesser,[15] and Tzanck, Huber and Abricossof[16] point to immuno-transfusion as a more desirable and more efficacious method in septicemia.

The variable effect of blood transfusion may be interpreted on a bacteriological and pathological basis. Septicemia due to the staphylococcus has a mortality of 68%, that due to streptococcus 32%, to B. coli 40%, to micrococcus tetragenus 50%, to B. pyocyaneous and to B. mucosus capsulatus 100% fatality. The strains of staphylococci and streptococci which are the common organisms encountered in septicemia, the second found more frequently than the first, may vary greatly in virulence and some of these strains possess an unusual capacity to multiply at alarmingly rapid rates and in huge numbers. The onslaught may be so severe as to completely overshadow the opsonizing, precipitating, agglutinating, and phagocytizing powers of the blood. The staphylococci have a particular tendency to metastasize to the various organs and there grow as foci which in turn may metastasize thus producing an interminable discharge of bacteria into the blood. The streptococci prefer to attack the valves and endocardium and emboli are constantly broken off from these, spreading elsewhere. With septicemia so advanced little can be hoped from blood transfusion. Too frequently blood transfusion is condemned when it is used in the terminal stages of an advanced blood stream infection. It is here advocated that to be effective this therapeutic measure must be employed very early before the patient is overcome by toxemia, before the normal humoral and cellular responses to infection are overwhelmed, and before the invading bacteria have multiplied and metastasized to any large degree. Transfusion should be given frequently, preferably every 48 hours, as suggested by Stetson and in adequate amounts during the entire course of the septicemia.

The following case is instructive because of the distinct response conferred by blood transfusion:

Charlotte V., aged 22 months, of normal birth, and the only daughter of healthy parents, had enjoyed freedom from illness except for an acute otitis media at the age of one year and an occasional cold since. Breast and bottle-fed during the first year, with cod liver oil and orange juice given at 1 month, the feeding history up to present age is faultless. Her teeth appeared, she sat up, talked and walked in the usual periods of time. The parents noted, however, that she had always been pale. On 2-12-35 the father declared that the baby had suddenly become feverish and described the temperature as being so high that a cigaret applied to the skin would burn." The baby was irritable and cried but no other symptom was present. The temperature was 106.5°; the baby was alert and appeared well; the skin, very pale, hot and dry, the eyes clear, the ear drums normal; the nasal chambers negative; the tongue coated; the tonsils perhaps slightly redder than normal; no findings in the lungs or heart; abdomen soft and slightly distended; no palpable spleen or tender kidney; reflexes normal; no Kernig or rigidity of the neck.

The following morning the temperature was 105.5°; the baby had cried all night. Physical examination failed to point to a diagnosis. That evening the temperature was 102°, the following day 106.8°, and on 2-15-35, 107°. On 2-16-35 the child was brought to Englewood Hospital, active, playful, and in a surprisingly good physical state. Dr. Henry Boettcher found the ear drums negative, but performed a bilateral myringotomy and no serum or pus exuded. The temperature assumed a septic course, rising from normal to 105°, 106°, 107° daily. The white blood count was 18,050; the red blood count 3,900,000; color index .9; hemoglobin 70%; the urine showed a very faint trace of albumin with 20 leucocytes per high powered field; the stools were negative for parasites and blood. The blood was negative for typhoid, paratyphoid A and B and undulant fever; the blood smears were negative for malaria; the differential blood picture showed 29% lymphocytes and 71% neutrophiles and the erythrocytes showed marked achromia; the spinal fluid Wassermann was negative and the spinal fluid showed 2 lymphocytes per cubic millimeter; the blood cultures were negative. The x-ray of the mastoids on 2 occasions showed no evidence of infection; x-ray of the chest showed negative lungs and the heart slightly enlarged to the left. Flat film of the kidney region showed no evidence of calculi but the distention of the small bowel and colon suggested to Dr. R. J. Maier, the roentgenologist, peritoneal infection. The diagnosis was septicemia of cryptogenic origin.

On 2-19-35 60 cc. of father's blood was given intramuscularly with no effect on the temperature. On 2-22 and 2-23 15 cc. of antimeningococcus serum and 10 cc. of antistreptococcus serum were given intramuscularly. On 2-25 110 cc. of father's whole blood was given intra-

muscularly. The temperature now reached a maximum of 104° but on 2-28 the temperature shot up to 106° with chill. At this point 20,000 units of diphtheria antitoxin were given intramuscularly. The temperature continued to soar from normal to 105° daily. At the suggestion of Dr. Julius Hess 100 cc. of father's citrated blood was given intravenously on 3-6-35. The temperature (for the first time in 4 weeks) remained normal on 3-6, 3-7, 3-8, 3-9. On 3-10-35 the child was discharged but the temperature at home began to resume its former course, reaching a maximum varying between 103° and 105°. On 3-15-35 with a temperature of 105.2° the child was returned to the hospital and given 170 cc. of father's citrated blood intravenously. Promptly the temperature fell to normal, rising to 101° the following day but thereafter up to 12-16-35 (the time of the writing of this paper) the temperature has been normal or very close to normal. On discharge from the hospital the white blood count was 10,750; the red blood count 4,300,000 and the hemoglobin 71%.

Summary: Blood transfusion is a most valuable therapeutic measure in septicemia.

It is best given intravenously early in the disease, every 48 hours, in adequate amounts until clinical improvement is detectable.

Immuno-transfusion is the superior method.

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MODERN PRINCIPLES IN THE TREATMENT OF EARLY SYPHILIS

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DECATUR, ILL.

The proper regulation and control of syphilis is today one of the major public health problems. Recent statistics furnished by the Illinois State Health Department show that there has been an increase within the past few years in the reported number of cases of both syphilis and gonorrhea. This is evidence of the need for a thorough, intensive plan of treating the infected individual, as it is only by prompt and energetic treatment of the infectious cases that one may hope for reducing the incidence of the disease. It is not within the scope of this paper to consider the innumerable vital public health problems of syphilis, but to present some recent developments regarding the clinical management of primary and early secondary lues.

Our present day information shows that, while much has been done to provide adequate medical care for the syphilitic patient, many of our poor results and late tragedies of this disease may be attributed to an insufficient evaluation of the amount of treatment required to give the greatest degree of security as to cure and the prevention of relapse.

In a recent study compiled from a survey of 10,000 cases from the United States Public Health Service clinic at Hot Springs, it was found that 57% of these patients had not received previous modern anti-luetic therapy. In 2,443 of the patients from whom data of previous treatment could be obtained, 16% had had no

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treatment for 6 years prior to their entrance to the government clinic.

It is by no means intended to place the blame for inadequate treatment upon those administering the treatment, for the education of the patient about the seriousness of the disease and the time required for cure is still the great barrier towards control of the situation. The difficulty revealed in obtaining the cooperation of patients may be further seen from some of the figures published in recent reports of the United States Public Health Service of cases treated in five of the larger syphilis clinics in the country. From the reported series, out of 75,000 cases of syphilis, of which 6,807 were cases of early lues, there were 1,360 patients under observation for 2 years or longer, and only 295 cases returned for observation for the desired 5 to 10 year period after injection and institution of treatment.

The conclusions drawn from the results of this survey will serve as the basis of this paper, for the accomplishments of such a study, prepared by some of the outstanding syphilologists of the country, can be used in outlining fundamental principles of treatment.

The first aim must be the recognition of the disease in its earliest stage, or as termed by Pusey, the "Golden Opportunity." Every suspicious genital lesion, no matter how trivial or superficial it may be, should have a dark field examination for diagnosis. The chancre in its earliest phase may appear as only a slight erosion or skin abrasion, entirely lacking the characteristics usually seen in the typical lesion.

Within the past 2 years the State Department of Health has developed facilities for dark field diagnosis of suspected primary lesions, a service which is of utmost value to those not having adequate facilities for performing this method of examination. The material consists of capillary tubes, in which the serum from the suspected lesions can be shipped to the department laboratories. The filled tubes are immersed in vaseline containers for mailing. Dark field diagnosis by this technique has been reported accurately in 85% of the cases, which makes this an invaluable aid for diagnosis in the seronegative state.

Stokes and his collaborators have shown that cure in the seronegative primary stage showed 83-86% best results, with an average of 71.4% in contrast to only 64-70% best results and 53.3% average when the disease has gone into the primary seropositive stage. Furthermore their statistics show that fixed positive blood tests develop in 3.8% when treatment is started in the seronegative stage, 14.5% in the seropositive primary stage, and in 13.3% in the early secondary stage. Further significance is seen from the figures that of the fixed positive cases in early lues, 30.6% developed neurosyphilis, while amongst those becoming Wassermann negative only 18% had neurosyphilis. From a review of these figures it is evident that as a public health duty, every physician should avail himself of every opportunity for diagnosis in the earliest stage of the disease, and particularly should avail himself of the present facilities for dark field examinations whenever his own may be lacking.

In the management of early syphilis the objectives to be sought are the control of infectiousness and the prevention of relapse. Needless to say the earlier the treatment is started and the more intensive the mode of therapy, the less likelihood there will be of further infections through contact with the infected individual. No matter what form of therapy is advised, the full cooperation of the patient must be obtained. No plan of therapy will be successful without a thorough understanding of the situation between the physician and patient at the outset, including a proper interpretation of the findings and diagnostic tests, and an explanation of the amount of treatment essential and the time to be consumed in obtaining this treatment. It is to be borne in mind that the syphilologist must treat the disease adequately, and also undertake to treat the patient from the sociologic aspect. In no other disease is the physician-patient responsibility more important. The physician must evaluate the question of cure, and advise as to the methods of preventing further infection, and, of utmost importance, he must emphasize the danger of discontinuing therapy as soon as the presenting signs or symptoms of the disease have disappeared sufficiently to suggest to the patient that the disease has been arrested.

In the control of infectiousness the arsphenamines are of greatest value. However, present day views of therapy are that no case of early syphilis should be treated by arsenicals alone. On the other hand no form of therapy should attempt to treat early lues by heavy metal alone, notwithstanding reports of the spirocheticidal properties that have been attributed to bismuth.

However because of its spirocheticidal properties, though vastly inferior to the arsphenamines in the control of infectiousness, bismuth has largely replaced mercury in the treatment of syphilis. The combined use of one of the arsphenamines and bismuth will give the patient safety from further infectiousness and the greatest safeguard against mucocutaneous relapse and neuro-recurrence.

The concept that the arsphenamines predispose to or aid in the development of neurosyphilis has not been borne out in a study by O'Leary and Rogin. In an analysis of 500 unselected cases of neurosyphilis it was found that the most serious involvement occurred in cases having had no arsenical therapy as compared to those having, what at this time may be termed adequate or inadequate arsphenamine therapy. Of this series, 85% of them had not received arsphenamine therapy in the early stages.

Of the forms of bismuth used in the treatment of lues, it is felt that the soluble, lipo-soluble and the insoluble bismuth preparations can be named in the order of their infectiousness controlling properties.

In the early treatment, when there are present open infectious lesions, the aqueous or soluble bismuth preparations are most efficacious because of the rapid absorption and spirocheticidal action. These preparations of bismuth have their advantages in that they cause an earlier disappearance of the *Spirochaeta pallida* in open primary and secondary lesions, and also produce an earlier therapeutic response, causing more rapid involution of the lesions. With these factors in mind it is obvious, that the aqueous and oil soluble preparations are of most value in the initial course of therapy in early syphilis. However because of the ease of administration, and the freedom from local irritation that is experienced with some of the soluble preparations, they should not supplant the insoluble preparations in therapy. The latter, while absorbed and eliminated more slowly are advantageous because of their prolonged presence in the body and constant spirocheticidal action.

Of the insoluble preparations, the various suspensions of the salicylate in oil, have been found very effective. They have been found to be relatively free from complications, have practically no harmful cumulative tendencies, are relatively free from local reaction, and are of distinct advantage in causing serologic reversibility. Better results are obtained by continued treatment with slowly absorbed drugs than by those more rapidly absorbed and eliminated.

With the increasing use of bismuth preparations it is important to be aware of the various reactions that may appear following its continued administration. While the literature is replete with the various types of arsenical accidents it has only been in the past few years that the untoward reactions that may follow the use of bismuth have been observed and reported. Bismuth should never be given intravenously, as several fatalities have been reported following this method of injection. In giving it intramuscularly, the plunger of the syringe should be withdrawn to avoid possibility of getting the drug into the blood stream. Furthermore, Irgang *et al* found that bismuth had no spirocheticidal effect when given intravenously.

Dermatoses of various types have been reported following its use. They may be urticarial, pityriases-rosea like, eczematoid, pemphigoid or herpetic in type. Herxheimer-like reactions and nitritoid crises have been observed following bismuth. Because of the severe stomatitis that may follow its use, it should never be used in the presence of oral inflammations. Cases of agranulocytosis, aplastic anemia, purpura, and gastrointestinal hemorrhages with severe diarrheas have been observed. Delayed bismuth reactions are usually the result of liver and kidney damage due to the accumulation of the drug following slow absorption of too large doses.

The results of the survey formed by the cooperation of the clinics with the United States Public Health Service were based on studies of four groups of cases; those on continuous therapy, in which the patient received arsphenamine or a heavy metal constantly during the first year of the disease; a second group that received intermittent treatment, that is, courses of treatment interrupted by periods of complete rest from therapy between courses; a third group receiving totally irregular treatment, cases that did not attend regularly for treatment, and a fourth group receiving short periods of intensive therapy, that is 3-4 injections of an arsphenamine alternating with heavy metal with long periods of rest between the combined arsphenamine-heavy metal courses.

It was found that continuous treatment, with-

out any rest periods during the 12 month period gave the results superior to any other form of intensive or intermittent therapy. With this form of therapy there was reversal of the Wassermann test in 81.8% at the end of the year, whereas only a 37.3% reversal was seen with interrupted therapy, and 4.7% reversal in the irregularly treated group. They further concluded then that the reason for the irreversible positive Wassermann test in early lues is attributable largely to rest intervals created by intermittent or irregular plans of treatment.

Furthermore, results at the end of 2 years with continuous treatment were termed satisfactory in 79.7%; with intermittent treatment it was 65%; with irregular treatment 33.3% and with intensive forms of treatment 23.4%, showing that the best safeguard against neuro-recurrence, serologic reversal, and mucocutaneous relapse lay in continuous therapy.

In administering continuous therapy a minimum of twenty injections of an arsphenamine, and twice that many heavy metal injections should be given. The treatment must be continuous in nature, with a rest of a month between the courses of the arsenical, during which time the patient should receive a heavy metal. During the arsenical courses the patient receives one dose weekly with an injection of bismuth between doses. The courses are so arranged that there is overlapping of the drugs.

For routine use, neoarsphenamine enjoys the greatest popularity because of its relatively easier method of administration than arsphenamine. The amount of neoarsphenamine in each course should be approximately 5 grams, given in divided doses. Individual doses greater than 0.6 gram are not warranted because of the greater intolerance to the drug in such dose, and because of the increased danger of reactions.

From an analysis of the above figures the great danger from the rest interval or lapse of treatment in managing early syphilis can be recognized. The formula of treating by schedule and not by the serologic test should serve as the basis of modern syphilologic practice. All patients should have a detailed, systematic presentation of the plan of therapy at the beginning of therapy. The figures given above show the fallacy of former methods in which the patient was given a "course" of treatment and then an undeserved rest, with a resultant greater possibility of relapse.

Continuous therapy affords a better means of keeping the patient under control. Regularity of attendance is more easily accomplished by this method, for in the past many patients stopped therapy prematurely because of the easily abused rest interval. As a public health measure in the control of the disease, continuous therapy, especially if instituted in the earliest stages of the disease, will be our greatest factor in obtaining a cure and in preventing further infections.

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DISCUSSION

DR. S. J. ZAKON, Chicago: I wish to compliment Dr. Burstein. We in Chicago and he in Decatur have come practically to the same conclusions. There is one other aspect in the treatment of syphilis that is probably of great importance and that is the economical aspect. I think it is important for the physician not to hurt the patient, not only by the treatments but also by the fees charged for the treatments. I think it is possible in an early case of syphilis to make arrangements with the patient to pay on a budget plan for the entire year and a half's treatment instead of for a single treatment and to tell the patient that it is much better for him not to receive any treatment than to receive only two or three injections and quit.

Should the patient be a pauper or unable to pay, it is the duty of the physician to see that he should receive proper free treatment at some state institution. This duty we as physicians owe not only to the patient but

to the state as a public health measure to prevent further infection.

One thing more; I wish to warn the physician against treating syphilis according to the detail men's outline, sent out by one pharmaceutical house or another. Select your drugs and be sure that the drug is potent, Council accepted, and do not listen to the various stories of the detail men. Treat early cases by system, a system adopted if possible on a state basis or a national basis, for only then will we ever be able to eradicate the disease.

Dr. Marcus R. Caro, Chicago: It has been a pleasure to hear the therapy of early syphilis discussed so fully. I should like merely to emphasize the difference between the treatment of early and of late syphilis.

In late syphilis we are dealing with an individual whose tissues have been damaged by the disease. The damage is usually beyond complete repair, and we must satisfy ourselves with aiming for the arrest of the disease rather than a complete cure. The treatment to be selected here must be conservative enough not to prove too great a strain for the damaged organs. The treatment in late syphilis must be individualized.

In early syphilis, however, we direct our attention more to the treatment of the disease than to the patient himself. We are dealing usually with an individual who is robust and young and who can tolerate the treatment well. In addition, we are dealing with a massive infection which endangers not only the patient himself but also all persons in contact with him. To safeguard the others we must make the patient noninfectious as rapidly as possible. To prevent the spirochetae from becoming walled off in some deep focus we must attempt to eradicate the infection rapidly and as completely as possible. To these ends we should employ intensive therapy, and intensive therapy for these patients can be systematized much more than is possible in late syphilis.

Since our aim is to destroy the spirochetae as rapidly as possible, the drug we should rely on chiefly in the early stage of syphilis is arsenic. Intensive therapy with neoarsphenamine or arsphenamine at the beginning of treatment is most important to cause a clearing up of the skin lesions, to produce a negative Wassermann reaction of the blood and to prevent a later relapse. Arsenic should never be used alone, however, but should always be given in courses alternating with those of the heavy metals. Bismuth and mercury, in addition to having a slight spirocheticidal effect, help to build up the tissue resistance against the infection. The treatment should be continuous for at least one year after the complete disappearance of all clinical manifestations of the disease. There should be no periods of complete rest from treatment during this time. It has been shown that in patients with early syphilis who have had insfficient treatment, stopping the treatment even for a month may produce lesions that are infectious again. Rest periods early in the course of the disease may result in a later relapse of mucocutaneous lesions or in a reversal of the Wassermann reaction of the blood.

I want to add a word of caution about performing a Wassermann test of the blood too soon after the beginning of treatment. Once the diagnosis of early syphilis has been made, the indication is to give the patient intensive therapy for at least a year after all clinical manifestations of the disease have disappeared. A Wassermann test performed before the end of that period can be of no help because, even if the test should be negative, that would be no indication that it is safe to discontinue treatment. The danger of an early test lies in the fact that some patients rely entirely on the blood test. Should the patient find that his blood Wassermann reacion is negative at the end of one or two courses of treatment, he might be given a false sense of security and might feel that it is safe to discontinue treatment long before it is advisable for him to do so.

MAL-UNION OF COLLES' FRACTURE AND ITS SURGICAL CORRECTION

Frank G. Murphy, M. D., F. A. C. S.

CHICAGO

Different theories expounding the cause of deformity, pathological anatomy, the clinical manifestations, the prognosis and the numerous proper procedures in the treatment of Colles' fractures have been emphasized innumerable times during the last 150 years. That progress has been made and is continually being made regarding the different phases of this very frequent and aggravatingly difficult injury is proved by a study of the surgical literature. The more recent the article written, the more lucid and concise are the opinions expressed. Different clinics and fracture committees give rather optimistic reports regarding the incidence of disability. They show that good results are obtained in from 90 to 95%, moderately good results in from 5 to 10% and bad or poor results in only 1 to 3% of cases. These favorable reports are not the result of insincerity or errors in judgment, but they are based more on the function percentage than on the anatomical restoration of the parts involved. How many of us have treated patients for conditions other than at the wrist joint and have noted the tell-tale deformity at the wrist, usually ignored by the patient, of a former Colles' fracture? Usually, when questioned, the patient states that the wrist was painful and gave considerable trouble for quite a long time after the injury, but that eventually

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From the Orthopedic Department of Cook County Graduate School of Medicine

the symptoms subsided and fairly good use gradually returned. Casually observed, function here is very good but accurately estimated, the deformity is of considerable degree. At the radiocarpal joint, normal function is 90°, but by this deformity it is reduced to from 20° to 45°.

Pouteau in 1783 wrote a rather good description of Colles' fracture. In 1814 it was carefully described in detail by Abraham Colles, but it was not until 1847, when Robert W. Smith described it, that this fracture became known as Colles' fracture. Since that time, numerous descriptions have been written attributing the deformity to line of fracture, to comminution, to partial dislocation, to muscle pull, to inaccuracy of reduction, to rotation of the lower fragment around the ulna, induration of the tissues and to many other reasons.

The early deformity may be due to one or several causes. The lower fragment, even though it be anatomically reduced as seen by post-operative x-ray, has a tendency to tilt backward in a considerable number of cases. The initial injury causes a traumatic impaction of the fragments at the line of fracture. The posterior cortical plate of the lower end of the radius suffers considerably more comminution or crushing than the anterior cortical plate does. Therefore, most of the so-called comminution takes place on the posterior portion of the broken radius. When this fracture is disimpacted and the fragments properly aligned in position, the anterior cortical plate of the radius fits properly. The fragments at their posterior approximation must be separated slightly in order to hold the lower fragment in position so that the articular surface of the radius is at least at right angles to the long axis of the bone. If this position of the fragments is not maintained until callus formation occurs, the lower fragment is very apt to tilt backward and to result in limitation of palmar flexion. This alignment and position can be maintained in several ways.

A. J. Howe in 1879 maintained proper position by using anterior and posterior splints. The late Sir Robert Jones and the students of his school maintained proper alignment by anterior and posterior twisted malleable iron gutter splints. Thomas King of Melbourne maintains accurate position of comminuted Colles' fractures by skeletal traction.

Taking for granted that this type of fracture has been properly reduced, the further treatment consists in accurately holding the fragments in position by a trained assistant until immobilization is applied. This is best accomplished by exerting moderate traction, remembering that the anterior surface of the radius is a gentle curve, while the posterior surface is straight. To eliminate subsequent pain and to allow free movement of the fingers and the thumb, immobilization must be carried out to effectively include the radiocarpal and carpometacarpal joints. The rotatory movement at the radioulnar joint must also be controlled. Any splint which does not extend to and include the elbow will not prevent rotation of the forearm. Rotation movements are painful. This immobilization of the fragments in proper alignment can be effectively carried out by the sugar-tong splint first described by Simpson. This is a plaster of paris, molded splint which extends from the metacarpophalangeal joint upward over the back of the hand, the wrist, the forearm and is carried around the elbow and downward over the anterior surface of the forearm, wrist and hand to the metacarpophalangeal joint anteriorly. It is trimmed so that its edges will not meet laterally and is bound to the unpadded forearm and hand with a gauze bandage. Traction is maintained during this time by the assistant, and while the plaster splint is setting, it is properly molded into the reduced fracture area. When it sets, free movement of the fingers is allowed but all other movements, including rotation, are prevented. There is also free flexion of the elbow joint and a moderate amount of extension.

Crushing comminution of the posterior cortical plate occurs in a considerable proportion of cases of any adult age. Therefore, the fragments should be firmly held by a well molded anterior and posterior splint. The position of the hand and wrist, which are held in alignment with the arm neither in flexion nor extension and midway between pronation and supination, eliminates prominence of the lower end of the ulna. In pronation of the wrist, this prominent bulge is the head of the ulna. In supination of the wrist, this is caused by the styloid process. Any undue pressure caused by swelling can be very easily relieved by slightly loosening the gauze bandage and allowing the sugar-tong to separate slightly.

This sugar-tong cast can again be tightened when the swelling subsides. Lorenz Böhler taught us that stimulation of function is very important in the healing of fractures. This is carried out here by insistence on frequent movement of the fingers. Bone atrophy does not take place if this is carried out and x-rays at various times during the treatment will not show disuse atrophy. Immobilization is maintained until good strength and union occur; this varies from five to seven or eight weeks. Frequent inspection of the cast and arm is necessary. In the early stages, swelling and pressure should be expected. After the first week and through the later stages, when atrophy of the soft tissues occurs, there may be some shrinkage so that the cast may not fit properly. This may allow the lower fragment to tilt posteriorly, resulting in a deformity if it is not properly anticipated and prevented by padding.

Malunited or Neglected Cases.—The cases that have had no treatment as well as the cases that have had inadequate reduction of the posterior fragment, and also cases that have not been adequately immobilized so that the lower fragment tilted backward and the splint became loose, frequently result in malunion. In the great majority of cases, the symptoms which may have been marked in the beginning usually become mild and are not severe enough to necessitate surgical intervention. The disability is usually not marked. In a considerable number of cases, however, there is gross deformity with marked limitation of wrist flexion, atrophy and marked disability. The amount of pain and disability varies, depending on the proximity of the sharp fragments on the anterior aspect to the median nerve and to the flexor profundus digitorum tendons.

In a recent case with insufficient calcified callus, correction of the deformity can be effectively carried out by the method of the late Sir Robert Jones, which consists of manipulation and breaking up of the soft union by a not too vigorous use of the Thomas wrench. Subsequent treatment is similar to that used in an acute case. Old cases of malunion have to be treated differently because an indiscreet use of the Thomas wrench or other rough manipulation may cause a new fracture above the old site on the shaft of the radius. It is preferable in this type of case to resort to an open osteotomy through a lateral approach. The radial nerve and extensors of the wrist are retracted posteriorly and the extensors of the thumb retracted anteriorly. The periosteum is split longitudinally and elevated. The malunion is exposed and the site of the osteotomy determined. A curved type of osteotomy is performed and is accomplished by using a sharp, rather large curved chisel, the convexity extending downward toward the wrist joint. When the bone at the fractured site has been completely and carefully cut through from side to side, the lower fragment may be easily slid around the cut surface of the upper fragment with a maximum of bony surface approximation, like a tire on a wheel, until the proper degree of alignment is obtained. Immobilization is now carried out similar to that in a fresh case. The period of immobilization before solid union takes place must be prolonged to eight or ten weeks.

CONCLUSIONS

1. Malunion in Colles' fracture is a frequent sequel to partial reduction or non-reduction of the acute fracture and to inadequate immobilization even after efficient reduction.
2. Deformity can be prevented by proper application of anterior and posterior molded splints.
3. Even though the fracture has been properly set, frequent inspection of the fracture position is advised.
4. Painful malunited fractures can be corrected in a recent case by manipulation.
5. Old malunited fractures can be corrected by the use of a curved osteotomy.
6. Prognosis after correction is good.

CASE REPORTS

Case 1. Miss E. P., aged 50 years, stenographer.

Complaint: Painful, swollen, weak left wrist; marked disability; limitation of flexion of wrist.

Examination: Malunited Colles fracture with typical swollen posterior tilting appearance. X-rays showed considerable posterior impaction and a fractured ulnar styloid.

History: The injury occurred three and a half weeks previously from a fall. Fracture was not diagnosed and she was treated with massage and heat, without improvement.

Treatment: Under general anesthesia the malunion was broken with a Thomas wrench. Fragments were properly aligned and plaster anterior and posterior

splint applied. Immobilization continued over a period of seven weeks. Patient returned to duty nine weeks from date of operation. This woman had considerable hypertrophic arthritis which delayed complete return of full functional movement in the hand and fingers for several months.

Case 2. Mrs. E. W., aged 28 years, housewife.

Complaint: Deformed, swollen right wrist with marked limitation of flexion and ulnar deviation; little pain.

History: Hand injured in a fall seven weeks previously. No doctor consulted, but a "bone setter" was visited who treated it for a sprain.

Examination: Typical malunited Colles' fracture with posterior tilting of lower fragment. X-rays confirmed the diagnosis.

Treatment: Under general anesthesia the malunion was broken by means of the Thomas wrench. The fragments were properly aligned and maintained with a complete cast. To hold the fragments in position full flexion was necessitated for eleven days, then gradual extension and finally removal of the cast at the end of eight weeks. Rotation movement was limited but returned completely at the end of four months.

Case 3. J. G., male, aged 59 years, pipe-fitter's helper.

Complaint: Painful swollen left wrist with inability to close fist without pain; marked limitation of wrist flexion and weakness.

Examination: Deformity due to posterior displacement of lower radial fragment. X-rays showed the malunion with a sharp angle anteriorly, resulting in severe misalignment.

History: Fractured by falling four and a half months previously. This was set and X-rays were taken; fracture reset the following day; in bed nine days. Plaster paris cast removed on eleventh day. Physiotherapy was administered for several months.

Treatment: Open curved osteotomy through lateral incision; proper alignment obtained. Immobilization maintained for four weeks. Good union at that time. Massage started. Pain disappeared from time of operation and function rapidly returned. Patient returned to duty as pipe-fitter's helper two months and seventeen days after operation.

Case 4. E. S., child, aged 9 years.

Complaint: Deformed right wrist with little or no pain.

History: This little patient fell on her hand ten weeks previously; the injured member was painful and tender for a few weeks, but she had no medical attention.

Examination: Colles' silver fork deformity of the right wrist; rather sharp angulation. X-ray shows Colles' malunion above the epiphyseal line through the radius only, at about a 30 degree angle.

Treatment: A lateral incision was made over the fracture site. Curved osteotomy done with convexity downward. Lower fragment slid around the cut surface until proper alignment was obtained. Immobilization in a cast for four weeks. Subsequent X-rays show good position, alignment and union.

Examination four months later showed splendid function but a very slight radial deviation.

Case 5. E. D., a girl, aged 10 years.

Complaint: Deformed left wrist with some pain and inability to flex the hand.

History: This patient fell on her hand thirteen days previously and had not consulted a physician during this time.

Examination: A rather extreme Colles' deformity with displacement of the lower fragment posteriorly. X-rays showed a separation through the lower radial epiphysis with marked displacement and overriding. Apparently good, strong malunion was present.

Treatment: With a Thomas wrench the malunion was broken. Much difficulty was encountered because the union was quite strong. The fragments were then properly reduced and aligned. Immobilized with a lateral and posterior splint in flexion. Good union was prompt and the cast removed at the end of three weeks. This patient is now aged 21 and shows no effect of the epiphyseal injury at that time.

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THE VALUE OF EXCRETION UROGRAPHY AS ILLUSTRATED BY SOME INTERESTING CASES

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Excretion urography, while still a comparatively new method of examination, is at this time fairly well established. Von Lichtenberg in the Journal of Urology, March, 1931, states that this test gives information in three directions: "1. One learns visualization of the urinary tract and learns principally the relationship between the various parts of the urinary tract. 2. One obtains important information concerning the kidney function by roentgenological means. 3. One is able to interpret the dynamics of the urinary tract by observing the expulsion of uroselectan."

The intravenous method differs a good deal from the former method of retrograde pyelography because the retrograde injection gives a

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dense pyelogram and we draw our conclusions entirely from the shadows of the ureter and pyelogram. In the intravenous method we have an entirely different proposition. The density of the intravenous pyelogram varies considerably, sometimes almost as dense as the retrograde method and sometimes scarcely discernible. The *reason for this variety in density is: First, a* normal kidney will excrete only about 5% of an opague solution; *about 10 to 12%* can be injected. Second, we can only gauge the pyelogram when the pelvis is in diastole. If films are made during systole the pyelogram may not be satisfactory.

Intravenous pyelography brings to us better visualization of the kidney itself as it becomes saturated with opaque material. Serial films give us a better idea of the renal pelvis and ureters. We were accustomed to seeing ureters with catheters in them, which made them conform to certain curves which are not seen by the intravenous method. *Ureters, we find, are much more* irregular in their course than we thought.

Indications for making a test by excretion urography are:

1. All cases where there is suspicion of kidney trouble.
2. Differential diagnosis of abdominal tumors, ptosed kidney, tumor of kidney, polycystic kidney.
3. Calculi of kidney or ureter.
4. Renal tuberculosis.
5. Anomalies of the kidney.
6. Examination of the urinary tract after surgical procedures, i. e., transplanting of ureters, plastic on kidney, nephrectomy after traumatic injury to kidneys.
7. Where retrograde is impossible because of anatomical obstruction of urethra or ureter, tumors, or diverticulum of bladder, obscuring ureteral openings, hematuria and edema of bladder obscuring openings, contracted bladder, small children or very nervous individuals.

Considerable study must be devoted to this method of examination and experience must be had in order to thoroughly appreciate its value. We can always check it by the retrograde method. The following cases illustrate the value of this method:

Case 1. F., aged 55 years. Complained of pus in urine and "run down" condition for seven years.

Excretion urography: A large calculus probably occupying the whole pelvis of the right kidney. No excretion of dye from this kidney. Left kidney: normal excretion. Nephrectomy revealed a kidney which was literally one large pus sac. Complete recovery.

Comment: Excretion Urography showed no function in right kidney whose pelvis is occupied by a large calculus. It showed normal function on the opposite side.

Case 2. M., aged 48 years. Severe attack of renal colic eight years ago. Intermittent attacks since.

Excretion urography: Right kidney has a large calculus in pelvis with three large globular cavities, one laterally, and one in either pole surrounding it. Left kidney and ureter appear normal. There is a calculus in upper pole of left kidney. Patient died in coma following nephrectomy.

Comment: Excretion urography showed that despite the large calculus and the apparent damage suffered by the right kidney it was still able to perform a part of its function. The left kidney has been infected as indicated by calculus. Removal of the right kidney threw too much of a strain on the left kidney.

Case 3. M., aged 60 years. A large, fleshy man. Chills, fever and urinary frequency. Four attacks in two months.

Excretion urography: Right kidney appeared normal. Left kidney is enlarged with marked distention of pelvis and ureter. The urinary bladder is contracted with a left sided diverticulum. Distention of left renal tract due to obstruction from infiltrating disease of the bladder wall.

Comment: Retrograde exploration was impossible in this patient but if possible it would have been highly undesirable.

Case 4. M., aged 57 years. "Kidney stone" symptoms for twenty years. Excretion urography: Right side, at brim of bony pelvis was a ureteral calculus. No function in right kidney. Left side: normal appearing kidney and ureter.

Excretion urography (4 days later): Right side. Calyces markedly dilated, minor calyces clubbed with a dilatation of ureter as far as calculus, showing function. Left side: Normal appearing kidney and ureter.

Comment: Excretion urography demonstrated a unilateral suppression of urine better than any other method.

Case 5. F., aged 23 years. Pain in right side with tenderness about one year. An attempt to pass a catheter into right ureter failed because of a large calculus producing an obstruction a short distance from the orifice. It was impossible to collect a sample of urine for examination.

Excretion urography: Right side: There is a large kidney shadow, larger than on the opposite side. Within this are four circular areas of dentistry probably due to a distention of pelvis, major and minor calyces. Left side: Normal kidney and ureter.

Comment: Excretion urography was the only method by which the condition and function of the right kidney could be learned.

Case 6. M., aged 46 years. Sharp pain in left side for two days.

Excretion urography: Right side negative. Left side: Enlarged kidney outline. No evidence of function. Ureteral calculus under tip of the left lateral process of the second lumbar vertebrae. Excretion urography four days later with same result. Calculus removed two years and eight months later.

Excretion urography (5 months after removal of stone): Right side negative. Left side: Kidney shadow has decreased almost to normal. Pelvis and calyces are fairly normal in appearance. Function good.

Comment: This shows how well excretion urography can check the return of function after removal of calculus.

Case 7. M., aged 56 years. Diagnosis of uremic coma and bronchopneumonia. Patient showed evidence of kidney disease and so was examined by excretion urography on leaving the hospital.

Excretion urography: Bilateral enlarged kidneys. Elongated valyces with outlines typical of polycystic disease. Renal function on both sides less than normal.

Comment: Excretion urography is a safe and as accurate as any method in diagnosing this condition.

Case 8. M., aged 78 years. Pain and burning right side of abdomen. Abdomen showed herpes zoster. In left loin there is a mass the size of a small grape fruit.

Excretion urography: Right side: Fairly normal kidney and ureter. Left side: Fairly normal kidney and ureter. Large oval mass overlying lower pole. Distinct outline of kidney can be seen through this.

Comment: Excretion urography because it makes the entire kidney denser enables us to distinguish it from surrounding structures. Without the intravenous method we would never have been able to detect the difference between the tumor mass and kidney shadow. Excretion urography is thus a valuable help in differentiating obscure abdominal tumors.

Case 9. F., aged 48 years. Complained of indefinite renal trouble left side. Retrograde injection of left kidney showed a small, highly placed deformed pelvis. The possibility of tumor was considered.

Excretion urography: Double renal pelvis and ureters both sides.

Comment: Excretion urography is proven of value in this patient as the best method of examination in any vague renal disturbance which, as in this case, was proven to be a congenital anomaly.

DISCUSSION

George M. Landau (Chicago): I wish I could be so enthusiastic and so sure about the diagnostic value of excretion urography. I believe it makes very little difference when a stone is demonstrable in the kidney as to the degree of visualization of the calyces since the insufficient filling can be attributed to the kidney stone and the resulting kidney disfunction, however where insufficient filling of the calyces exists and where stone is not demonstrable, how may one differentiate between an invisible stone or tumor since both are capable of producing disfunction?

My first embarrassment in this connection occurred some years ago where the insufficient filling of the calyces led to a diagnosis of hypernephroma because of the typical spider shaped deformity of the calyces. On retrograde pyelography a stone in the pelvic ureteral junction was found and I have made it a practice since when insufficient filling of the calyces exists without definite evidence of stone to check that kidney by the retrograde method. Failure to visualize the kidney is due to kidney disfunction, but how unless retrograde is resorted to in such cases are we to determine whether the disfunction is due to high blood pressure, pyelitis or beginning anuria since they are some of the probable causes of kidney disfunction? In other words complete absence or partial visualization of the kidney cannot be attributed to stone or tumor mass alone and it has been my experience that on retrograde pyelography in many such cases of poorly visualized calyces by the intravenous method a normal pyelogram and uretrogram were found.

HYPERTHYROIDISM MASKED AS ESSENTIAL HYPERTENSION

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The association of hyperthyroidism and hypertension has been reported in the medical literature; nevertheless, this association is not generally appreciated. Although hyperthyroidism is easily recognized in a patient who presents clear cut symptoms; yet, when the hyperthyroid picture is masked by hypertension or other cardiovascular disease, its recognition may be difficult. In such cases, a high basal metabolic rate (B.M.R.) is often erroneously explained on the basis of cardiac failure or hypertension. The cases reported in this paper are of interest not only because they simulated hypertension, but also because their presenting symptoms were so unusual. In the majority of these cases, the diagnosis of hyperthyroidism was overlooked for some time. It is always well to bear in mind the possibility of hyperthyroidism in unexplained cardiac symptoms and in hypertension, especially if the patient be a female. The following points may be of help in diagnosis:

The early complaints may be referable to the heart, vascular, or nervous systems, or even the gastrointestinal tract; in not a few, the outstanding finding may be high blood pressure. Emotional instability is evidenced by nervousness, restlessness, worry and a highstrung feeling. Pain associated with numbness in the extremities, particularly in the hands and fingers, is a

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common complaint. Pigmentation is common; it is usually brown or salmon color and is more pronounced on the exposed parts of the body. "Weakness of the extremities, especially in the quadriceps is a valuable sign. A feeling of sustained warmth in the absence of fever is very suggestive of hyperthyroidism. These signs together with weight loss in spite of a good appetite are almost diagnostic."[1] Diarrhea, nausea and vomiting, and a "nervous or capricious" stomach have been reported and may draw attention to the gastrointestinal tract.

On examination, the heart action is found to be rapid and forceful and does not subside on rest. The apex beat is sudden and forceful and is best elicited by palpating with the edge of the hand.[2] Systolic shock is frequent; and in about 30%, a thrill is felt.[3] Various authorities describe the first sound at the apex as short, abrupt, loud and roughened. A systolic murmur is commonly heard over the whole precordia. A pulsating abdominal aorta and Corrigan pulse are frequently observed, and the entire impression is one of forceful action on the part of the cardiovascular system.

Chest films often give valuable information. The heart may be shaped like a ham, and there is usually undue prominence of the pulmonary arc.[4] The left auricle is not enlarged which serves to differentiate this condition from that of mitral stenosis.

The electrocardiogram is usually normal. In the cases with damaged hearts left ventricular preponderance is seen in about 20% and right ventricular preponderance in a little over half that number. The T wave is high and may be inverted in leads one and two. Auricular fibrillation is seen in about 20%.[5]

In the examination of the thyroid gland, palpation should be done standing behind the patient who should also be standing. In this way more of the gland may be palpated because there is a tendency for it to rise from under the sternum. Even though nothing is palpable in the neck, x-ray films should be made in suspicious cases. Lateral views are particularly helpful; often the gland is visible behind the trachea.

"Other symptoms are: tremor, flushing of the face, moist skin, light brown patches—most often seen at the base of neck and shoulders—fidgetiness, enlarged cervical lymph nodes, circumscribed edemas, insomnia, hyperglycemia, lowered protein assimilation and polyuria with increased calcium and phosphorus and decreased chlorine excretion. There is mild anemia, and the lymphocytes and large mononuclear cells are increased. There is also impotence in the male and decreased fertility in the female."[6, 7]

The following cases are representative of the group:

Case 1: This case was seen on the service of Dr. Leon Bloch of the Michael Reese Hospital. He has kindly consented to its use in this paper. A man 57 years of age had been suffering from gastrointestinal syptoms for 12 years; he had remissions when he felt quite well. He complained of generalized abdominal pain, diarrhea alternating with constipation, vomiting and nervousness. Previous to this illness he had always been well.

Physical examination revealed a rather large man, who appeared prematurely aged. The skin of the face and neck was a muddy brownish color which was deeper brown around the eyelids. Closer observation revealed patches of a salmon pink color. The teeth were bad, and there was pronounced fetor. The sclerae were muddy and there was excessive watering of the eyes. The thyroid gland was not palpable. The heart was not enlarged, the pulse was 72 and there was a systolic murmur at the apex. The systolic blood pressure was 190 and the diastolic pressure 115 mm. of Hg. The abdomen was not tender, and no masses were felt. The stools showed no blood, ova, or parasites, and the urine was normal. A gastric analysis showed a total acidity of 10 and no free acid. The red blood cells numbered 4,800,000, and the white cells, 9,800. A differential count showed polymorphonuclear cells 68, lymphocytes 28, monocytes 4. X-ray examination of the colon, stomach, and duodenum revealed nothing abnormal except hypermotility of the stomach. The gall bladder showed good concentration of the dye, and no stones were seen. The B. M. R. was 31 plus. Because of the pigmentation, nervousness, and the elevated B. M. R., it was thought that his symptoms might be due to hyperthyroidism, and x-ray films of the neck and thorax were made. The report by Dr. Arens was as follows: "The heart is not enlarged. There is a dense shadow over the right sternoclavicular area with deviation and encroachment on the tracheal lumen in the thyroid area, which suggests an enlarged right thyroid lobe."

On the smooth diet of Alvarez, with tincture of belladonna, iodine and sedatives, this man's symptoms disappeared.

Case 2. A white woman aged 52 years, who had always been well was first seen in September, 1933. For eight years she had had menorrhagia. Three years ago she first noticed dyspnea and nocturia. For the past three months she had noticed tachycardia, nervousness, sweats, and a tightness and numbness in the fingers of

the left hand; white spots appeared on the fingers, and the hand was always cold. Her father had died at 79 with cerebral hemorrhage; her mother, at 76 with dropsy.

There was a uniform light brown pigmentation of the skin. The thyroid gland was not palpable, and there was no exophthalmos. The heart was not enlarged to percussion, and the rate was 120 and regular. The blood pressure ranged from 210 to 270 systolic and 125 to 160 diastolic. The liver was slightly enlarged, and there was some edema of the ankles. The urine: albumin 4 plus; sugar 2 plus. The blood: red cells, 3,900,000; white cells 10,200. The B. M. R. was 75 plus. The blood sugar was 375 mg. per 100 c. c. The non-protein nitrogen was 36 and the creatinine 1.1 mg. per 100 c. c. The carbon dioxide combining power was 62 volumes per cent.

Except for a drop in the pulse rate, there was very little benefit from digitalis. Roentgen irradiations to the thyroid gland were begun. After two treatments, the metabolic rate had dropped to 52 plus; and after four treatments, the metabolic rate was 41 plus. There was also considerable symptomatic improvement, and she was able to do more work than previously. There was no very appreciable drop in the blood pressure. Her improvement was only temporary; therefore, it was decided to try physostigmine salicylate as advocated by Bram. There was again symptomatic improvement, but the blood pressure remained about the same.

In April, 1934, her vision which previously had been good, began to fail. An examination of the eye grounds revealed a fine black haze around the margins of the discs and moderate to deep constriction of the veins; there were no hemorrhages nor exudates.

When last seen, June, 1935, this patient was getting along fairly well.

Comment: This patient had diabetes which was controlled by diet, but this alone would not explain all of her symptoms. The tachycardia, nervousness, sweats, pigmentation, and the elevated B. M. R. are best explained by hyperthyroidism; and, in addition, hyperglycemia is not uncommon in hyperthyroidism.[6]

It is claimed that cardiac failure may determine an increased heat production; but if it were so in this case, we should certainly expect more evidence to incriminate the heart than we have here. There was no evidence of valvular disease and no cardiac irregularity; however, there was dyspnea and edema of the ankles; but evidence of decompensation was lacking. The response to digitalis was not convincing, and the dyspnea was not relieved even after a rest of one week in bed. Upon closer observation it was found that the dyspnea was more of an hyperpnea, present also at rest, the sort of breathing that has been observed with hyperthyroidism.[6, 8] Furthermore, in patients with congestive heart failure in other forms of heart disease, the B. M. R. is rarely over 25 plus.[5] Mundy says "it is probable that the increased activity of the muscles of inspiration results in greater oxygen consumption, and the heart itself plays no part in the altered metabolism."[5, 9]

Case 5: A woman 30 years of age complained of loss in weight, swelling of the ankles and abdomen, shortness of breath, rapid pulse and nervousness. She had an illness several years ago which was diagnosed hyperthyroidism. There was no history of rheumatism or chorea. Examination revealed an exophthalmos and an enlarged thyroid gland containing a nodule. The heart was enlarged to percussion and the typical signs of cardiac failure were present. The pulse rate was 116 and the blood pressure was 238 systolic and 116 diastolic. The B. M. R. was 54 plus. The blood urea and creatinine were normal as was also the urine.

Comment: In this case the cardiac symptoms were so overwhelming that at first the diagnosis of hypertensive heart disease with cardiac failure was made. It was only after the B. M. R. was done that attention was drawn to the other symptoms of hyperthyroidism, namely; the rapid pulse, nervousness, enlarged thyroid gland and the exophthalmos.

In this group of 12 cases, there were 10 females and 2 males. In all 12, the systolic pressure was above 150 mm. of Hg.; the diastolic pressure was 90 or above in eleven; and in the remaining case, there was aortic insufficiency. Subtotal thyroidectomy had been done in four cases, but there was very little drop in blood pressure after the operation. One of the patients operated on died. Of the eight not operated on, two are known to be dead. Renal damage sufficient to account for the hypertension was present in only one instance; and in this case, the renal damage may have been the result rather than the cause of the hypertension.

That the systolic blood pressure is elevated in hyperthyroidism very few will dispute; however, the oft repeated statement that in hyperthyroidism the diastolic blood pressure is low or unaltered is not confirmed by the evidence herein given nor by a large number of the cases presented in the discussion which follows: rather should we conclude from this evidence that the diastolic pressure may also be elevated.

Discussion. There is plenty of evidence that high blood pressure is a common accompaniment

of hyperthyroidism. Dameshek[10] gave an excellent review of the subject in 1924; he reported 141 cases of hyperthyroidism and presented evidence to show that the blood pressure was elevated in the group with signs of cardiac damage. Hurxthal[11] reported 458 cases of hyperthyroidism and found that 26.8% had a systolic blood pressure above 150 mm. of Hg. In 100 cases of severe exophthalmic goiter, 42% had a systolic blood pressure over 150 mm. of Hg.; and in 54 cases of adenomatous goiter with hyperthyroidism, this same figure was 62%. Rosenblum and Levene[12] found 23 hyptensive cases among 42 patients with hyperthyroidism. Parkinson and Crookson[4] made a study of 130 cases of thyrotoxicosis; blood pressure readings were given in 88. In 45 or 51.1% the systolic blood pressure was at least 150 mm. of Hg. In 35 or about 40% the diastolic blood pressure was 90 mm. of Hg. or more. Parkinson and Hoyle[13] cite 100 cases of hyperthyroidism all of which had a systolic blood pressure above 160 mm. of Hg., and 89 of these had a diastolic pressure of 90 mm. of Hg. or more.

In order to further estimate the occurrence of hypertension in hyperthyroidism, I have grouped together a number of cases appearing in the literature under the caption of latent or masked hyperthyroidism or a similar title. There were 60 such cases representing the following investigators:[7, 14-23] The results were as follows: Systolic blood pressure readings were recorded in 56 and diastolic readings in 55. There were 28 cases of systolic hypertension, or 50%, and 22 cases of diastolic hypertension, or 40%.

How do these figures compare with the incidence of hypertension in the general population? Bell and Clawson[24] used as a basis for hypertension all cases of cardiac hypertrophy at autopsy that could not be explained by some other form of cardiac disease. They found that hypertension was present in 12% of all persons over 40 years of age. Sutton[25] quotes Alvarez who found, in a study of several thousand persons, a systolic blood pressure of 140 or over in 20.7% of males and in 3.7% of females. This is an average of 12.5%. It seems clear therefore, that the incidence of hypertension is two or three times as frequent in hyperthyroidism as it is in the general population.

It would probably be stretching a point to say that the cardiac hypertrophy so frequently seen in hyperthyroidism might be the result of hypertension; yet, one cannot but note the parallelism that exists between the high incidence of hypertension and the high incidence of cardiac hyperthrophy in hyperthyroidism. Andrus and McEachern[26] quote McEachern and Rake who found 16 cases of moderate hypertrophy among 27 cases of hyperthyroidism. Parkinson and Crookson[4] in an examination of 43 thyrotoxic hearts at autopsy found hypertrophy in 50%. Coller[27] in an examination of 300 cases of adenomatous goiter found cardiac hypertrophy in 20 to 40%.

Other investigators have referred to the occurrence of hypertension in hyperthyroidism, most of whom believe that this association is more than mere coincidence:[2, 13, 28, 34] The occurrence of an elevated B.M.R. in hypertension also has been stressed:[22, 35, 37]

A thyroid element in hypertension was recognized by many workers at different times in various parts of the world. Barach,[38] Mannaberg,[39] Foster,[40] Gallavardin,[41] Riesman,[34] Plummer,[42] have all referred to it. Barach referred to a tonsil-thyroid syndrome in females that culminated in hypertension after the menopause. Plummer found that 27% of patients with non-hyperplastic goiters who were 40 years or over showed hypertension; there was no evidence of thyrotoxicosis. He concluded that this could not be explained by coincidence. Riesman mentioned a "non-goitrous thyrotoxic hypertension" with symptoms closely resembling those of a thyrotoxicosis.

Some writers go still further and say that clinical hyperthyroidism may be the precursor of hypertension. Bach and Bourne[32] cite several patients with hyperthyroidism who developed high blood pressure in subsequent years. The authors make the following statement: "That the raised blood pressure was in each case due to hyperthyroidism is a reasonable deduction." Parkinson and Hoyle[13] make a similar statement: "Thyroid toxemia will some day be recognized as one of the sources of essential hypertension and not merely one of its concomitants." With the last statement, I am not in full accord because at the present time there is evidence that there may be some other factor behind the symptoms of thyroid activity; and that all the

symptoms of hyperthyroidism are not produced directly by a "thyroid toxemia." It is possible that a disturbance of the sympathetic nervous system may play a role in the production of the hyperthyroidism and also of the hypertension.[6, 43, 45]

CONCLUSIONS

Twelve cases of hyperthyroidism are cited; all had systolic hypertension, and eleven had diastolic hypertension.

Exidence is presented to show that the diastolic pressure in hyperthyroidism is elevated as well as the systolic.

Evidence is presented to show that the incidence of hypertension in hyperthyroidism is much higher than in the general population. The possibility that hyperthyroidism may be an etiologic factor in hypertension should be considered, or that both conditions are manifestations of some other underlying disturbance.

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TREATMENT OF HEMORRHAGE IN HEMOPHILIACS AND NON-HEMOPHILIACS WITH THEELIN IN OIL

PRELIMINARY REPORT

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Hemorrhage, due to some abnormal condition in the blood in a true hemophiliac and non-hemophiliac, has long been a dread of the practitioner. The true cause of hemorrhage, I feel, is still unknown, but I believe that it is firmly

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established that the hemophiliac type occurs in the male sex exclusively and runs in a family tree, transmitted from generation to generation, sometimes even omitting the transmission in a generation. Various drugs and remedies for control of hemorrhages in hemophiliacs and non-hemophiliacs have been tried with only moderate effectiveness. If I may mention a few of the most common:

Horse Serum. A preparation often used because of its known influence on hemorrhage by increasing the coagulability of the blood thereby reducing the hemorrhage to a general oozing. As we all know, the use of this product causes a severe reaction in the patient, so that its use should be guarded with the utmost precaution.

Adrenalin. Intramuscularly and locally has proven of little or no value, except for cardiac conditions resulting from the hemorrhage.

Transfusion. Has proven of slight value except for anemia resulting from the hemorrhage. I found that it is followed by extreme shock in hemophiliacs and therefore should be used with great consideration and only in extreme cases of secondary anemia.

Calcium and other coagulants by mouth have their use, but due to the slowness in effectiveness orally, they are of little value here.

Pressure is one of value in some cases, if one is able to use it, but not curative.

With the idea that hemophilia occurs only in the male, I was of the opinion that the ovaries in the female were a factor in the absence of such abnormal condition in the blood in that sex, as was recalled to my attention by an article written in 1933 by Dr. Carrol Burch of Chicago. With this theory in mind I began treating hemophiliacs who came under my care with various ovarian substance such as corpus luteum, whole ovary, etc., both orally and intramuscularly, at first with slight improvement until I, by chance, used the extract sold under the trade name "Theelin in oil" (Parke Davis & Co.). With the intramusclar use of one ampoule, 1000 International units per cc, of theelin in oil every two to three hours, great improvement, if not complete cessation, was apparent after the injection of three to four ampoules. The use of theelin, in my hands, has proven of exceptional value, but must be given as often as every two hours in one ampoule doses, unless in extreme conditions when I advise two ampoules for the first dose.

Several patients have complained of severe stinging at the site of injection, which I relieved by the use of a small amount of one to two per cent. novocaine. In using the latter, I drew the theelin into the syringe and then four or five mm. of novocaine, so that on injecting, the amount of novocaine was injected first and after four or five seconds the rest of the syringe, with absolutely no pain to the patient, who even asked if the hypodermic had been given. To verify my enthusiasm for the use of this drug in the treatment of hemorrhage in a hemophiliac and non-hemophiliac, I cite several cases.

Case 1. White, male, a true bleeder with a family tree, 26 years of age, admitted to the hospital January 23, 1933, for a septum operation. Before admission to the hospital the entire blood picture was checked and rechecked over a period of several weeks by our local pathologist, who found as usual all tests normal and said his condition was favorable for operation. The operation was performed on January 23, 1933, A. M., with a normal amount of loss of blood during the operation. About four hours post-operative severe nasal hemorrhages occurred, accompanied by a marked increase of pulse to 140. An attempt was made to control this by the use of ephedrine and thromoplastin and various other types of nasal packs, which required changing every four to ten minutes for the next forty-eight hours. The packs were kept in place by the use of nasal splints. On the third day of the hemorrhage, a transfusion was performed with little noticeable effect on the hemorrhage, but caused extreme shock to the patient. On January 28, 1933, I began using whole ovary and corpus luteum, by mouth and hypodermically, with a very slight improvement of the bleeding. On January 30, 1933, at 6 P. M., I began the intramuscular injection of theelin every three hours, which controlled the hemorrhage, so that on the morning of January 31, 1933, the nasal packs were removed and only the nasal splints left in. Recovery was uneventful from this date, the patient leaving the hospital on February 4, 1933. The blood picture of the patient on admission was, R.B.C., 5,380,000; W.B.C., 12,050, 85%; on February 1, 1933, R.B.C., 4,050,000; W.B.C., 10,200, 60%.

Case 2. White male, 14 years of age, admitted to the hospital December 19, 1934, for T. A. operation following an attack of acute quinsy of two days' duration. The operation was performed on this date and was uneventful until about four to five hours post-operative, when the patient had a severe hemorrhage from the throat. Attempts were made to control it by packs, pressure, ligatures and the use of coagulants, but to no avail. On December 20, 1934, A. M., I used theelin, one ampoule every two hours, and at twelve noon of the same day the bleeding had completely stopped. The patient left the hospital the same day. If I may use the words of the attending specialist, "It did everything I could ask it to do."

Case 3. White, male, 54 years of age, admitted to the hospital January 22, 1935, 11 P. M., with a severe compound comminuted fracture of the lower third of the right tibia, accompanied by a severe hemorrhage, which was general in character. The leg was treated, and all bleeders were ligated, traction applied by the use of a Steiman pin in os calcis and large dressings and pressure applied. Bleeding continued until about 9 A. M., when the patient's wife informed me that he was a known bleeder, so diagnosed at one of our leading clinics. Immediately upon this knowledge, I started my treatment with theelin, 1 cc. ampoule every two hours and in four hours bleeding had completely ceased and remained same to this date.

Case 4. White, male, 19 years of age, operated on for deviated septum followed immediately by a severe hemorrhage and shock. The operator was partly able to control this by packs and various oral hemostatic drugs, but moderate hemorrhage continued even to the point that packs were forced out of the nose and had to be replaced. For a period of two weeks postoperative packs were changed at various times and always followed by extreme hemorrhage, and by this time was accompanied by severe secondary anemia. After two weeks of repeated hemorrhages and continued bleeding, I was called to attend the patient and administered, in the first twelve hours, six ampoules of theelin, which was followed by complete cessation of the bleeding, even with removal of the packs. The next day the patient received two more ampoules, and his condition remained uneventful for the next five days, when the operator cleaned out the nose by swabbing and irrigation, and on the following morning upon awakening a large crust came out of the nose, followed by five or six drops of blood, at which time he received one more ampoule and was allowed to get up, even to going down stairs for the first time. No signs of even a drop of blood were noticed from that date. This small amount of blood on removal of the crust in my mind would be a normal amount from such a condition. I feel that it more emphatically impresses the value and control obtained by the use of theelin in oil.

Case 5. White, female, 26 years of age, March 20, 1935, who had an emergency operation for torsion of a right ovarian cyst. At operation bilateral dermoid cysts were found, and a bilateral oophorectomy was done. At operation all bleeding was completely stopped except for a general subcutaneous ooze, which continued and necessitated changing of dressing in four hours, at which time one ampoule was given every two hours for four doses, which completely checked the bleeding to this date. I feel that this type of bilateral disease of the ovaries affects their secretion, so that the blood loses the benefit of their secretion, thereby causing the same condition, as I feel is the cause of hemophilia.

Case 6. A true hemophiliac was operated on for necrosis of tibia and non-union, at which time necrotic tissue was removed and bone chips from the other leg were used to fill in gap in non-united leg. Previous to the operation one ampoule of theelin was given three times a day for two days, and at the time of operation bleeding seemed to be of about normal amount. Postoperative, two ampoules were given three hours apart, and bleeding has been completely controlled since then, a period of three weeks.

Case 7. White, male, 29 years of age, had a bilateral turbinectomy on April 30, 1935, which was accompanied by a severe hemorrhage, uncontrollable by packs and oral administration of hemostatics. Four hours, postoperative, I saw the case and immediately gave him two ampoules of theelin, repeating the same dose three hours later, at which time bleeding had stopped. Three hours later one ampoule was given, and ten hours later one more ampoule was given to fortify the treatment. Two hours after the last ampoule, the packs were removed and nose swabbed out without a trace of blood. This patient is a severe asthmatic, but received no reaction from the use of this drug, which proves that it can be used also on asthmatic patients.

Case 8. White, female, 17 years of age, operated on about one year ago for an incomplete abortion and removal of large bilateral cysts of ovaries. At that time recovery was uneventful and for eight months menses did not appear. About five weeks ago menses started with a severe hemorrhage and patient continued to have an excessively heavy flow. For four weeks various types of hemostatic drugs were used for the contraction of the uterus with no relief. I gave the patient one ampoule of theelin every four hours for six doses, which was followed by complete cessation of menses. Since this time menses have been normal in every respect, patient having returned to school and general exercises.

From the above instructive cases I hope I have been able to demonstrate the marvelous results I have obtained from this ovarian extract and also further hope to prove that the ovaries in the female are the restrainer of the hemophiliac conditions, but the destruction or removal of same may allow hemophilia to occur. I am sorry that I am unable to state the reaction that occurs in increasing the coagulability of blood with the use of theelin in oil, 1000 International units per cc; but feel that it must certainly increase the prothrombin, or at least activate it in the blood. I hope to report in the future in more detail as to use and action of this follicular substance which has proven itself of absolute value in the treatment of hemophilia of various types.

Safety Building.

DISCUSSION

Dr. Don C. Sutton, Chicago: I am extremely pleased to hear this paper. I spoke yesterday of the fact that clinical investigation can be done as well outside the larger medical centers as within them. This paper is in line with that thought.

Dr. E. B. De Silva, Rock Island (closing): There are two types of theelin, and the theelin in aqueous solution has a different result.

THE COLON AS A SOURCE OF ABDOMINAL PAIN

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A careful survey of the material from any large medical or gastrointestinal clinic will show that far more than half of all the instances of abdominal pain which come under observation are due to functional or anatomical disorders of the bowel. It is interesting, therefore, to consider the mechanisms and causes of this most common of all sources of abdominal pain.

There are three mechanisms for the production of pain from the colon:

A. Increase in tension of the bowel or in pressure within the lumen of the bowel:

I. Actual increase in volume distention, e. g., gaseous distension, enema, etc.

II. Pressure increase due to muscular contraction.

a. Increase in peristalsis and tonus contraction.

b. Obstructing mechanisms.

1. Organic narrowings.

(a) Neoplasm.

(b) Cicatrizing stenosis arising from healing of ulcers and other inflammatory lesions of the bowel wall.

(c) Adhesive bands.

(d) Extrinsic pressure, e. g., Neoplasms, glands, etc.

2. Spasm.

(a) Diffuse—transitory.

(b) Localized—due to inflammatory lesion, e. g., diverticulitis.

B. Inflammatory (peritoneal).

C. Neoplastic — (Relatively unimportant since not usually present. The pain of neoplasm is usually obstructive).

The mechanism responsible for the production of peristaltic pain is the one which has been so thoroughly studied by the balloon method evolved by Carlson and used by Alvarez and other observers. It is so closely related to the physiologic mechanism of bowel contraction that it requires relatively little alteration in anatomical or physiological conditions to bring it about. It is impossible to dissociate the effects of increased tension of the bowel wall and increased pressure within the bowel because a distension of the bowel usually stimulates increased contraction. A slight increase in tension may register only as a feeling of fullness or distension. A somewhat greater tension results in actual pain which may vary from a dull ache to terrifically severe, cramp-like colic of our green apple experiences of childhood. This pain not infrequently becomes so severe as to cause nausea, vomiting or actual fainting. The increase in pressure and resultant distress may be continually localized to the same bowel segment in the case of a localized cause or may be such as to give rise to increase in pressure at one time in one segment and again in another elsewhere and at still other times generalized throughout the entire abdomen. The pain may register in the exact region where the increase in pressure is occurring, as we have been able to observe countless times during the course of fluoroscopic examinations of the colon, and it may be referred elsewhere at the same time or it may less commonly be felt only in the location of reference. The most common reference is to the back but occasionally the pain may be referred up over the lower part of the chest or down the front of the thighs. Occasionally it is referred to the pelvis or perineum.

The increased peristaltic activity which produces pain usually results also in an increased rate of movement of material through the colon, thus causing a decrease in the time available for absorption of water from the bowel content and a corresponding increase in fluidity of the stools —that is, diarrhea. We find, therefore, a frequent co-relation of pain and diarrhea in the symptomatology of bowel disorders. Exceptionally it may happen that intense or persistent spasm of colon segments may interfere with forward movement of the bowel content, resulting in pain associated with constipation, as seen for example in lead colic.

The most important etiologic factors producing this pressure type of distress will include:

1. Localized primary disease of the colon such as carcinoma, polyp, tuberculosis, etc. These lesions may cause merely a compensatory increase in the pressure produced by peristaltic contraction or may in addition, act as irritants to cause

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a reflex increase in peristaltic activity, which may be either localized or general.

2. Extrinsic disease involving the bowel to produce obstruction, e. g., hypernephroma; pancreatic cyst; masses of glands due to Hodgkin's disease, tuberculosis or carcinoma involvement, or any of a variety of conditions which may impinge upon the colon in a region which does not allow its escape and result, therefore, in obstruction.

3. Generalized irritative and inflammatory processes. These are by far the most common cause of colon pain. Included in this category are all of the heterogeneous groups of cases which fall within the general diagnosis of "colitis" and which have furnished the material for so much discussion regarding classification and nomenclature.[1, 2] In general the group may be divided into

a. Simple irritation.

b. Inflammatory:

1. Non-ulcerative.

2. Ulcerative.

(a) Nonspecific ulcerative colitis.

(b) Amebic dysentery.

(c) Bacillary dysenteries.

(d) Tuberculosis, etc.

The dividing line between the irritative and the actually inflammatory cannot always be sharply drawn and that which at one time seems to be merely irritative may subsequently prove to be actually inflammatory. The causes of the simple irritative and non-ulcerative inflammatory types may be grouped as follows:

A. Dietetic causes:

1. Excessive amounts of the laxative components of the diet.

2. Abnormal food irritants.

a. Abnormal food combinations.

b. Chemical irritants resulting from food decomposition or fermentation.

B. Drugs. The prevalent use and abuse of laxatives by the lay public, promoted by the extensive advertising campaigns of the manufacturers, have provided the source for a tremendous amount of peristaltic distress. Enemas of all kinds tend likewise to irritate the colon and the addition of soap, magnesium sulphate, glycerine and various other chemical substances to enhance their effectiveness in emptying the colon, serves also to increase their effectiveness as irritants.

C. Chemical irritants produced within the body. Included in this group are bacterial toxins—as for example, those responsible for the diarrhea observed frequently in the early stages of pneumonia and various other infectious diseases; those less clearly defined chemical products resulting from the faulty metabolism occurring in the tissues at abnormally low temperatures, as a result of chilling the body; metabolic products reaching the bowel via the blood stream because of serious metabolic or excretory derangement elsewhere, e. g., in hyperthyroidism and in uremia. The latter furnishes an excellent example of the way in which a single cause may, under varying conditions, result in simple irritative or actual non-ulcerative inflammatory change and, in its more severe degrees, extensive ulceration of the colon. It may thus serve to emphasize the indefinite borderline between these groups.

D. Nervous factors. The contraction of the colon in response to stimulus acts as a conditioned reflex. The factors of nervous and mental stress, extremes of emotional state such as anxiety or fear, anger, etc., tend to modify the degree of peristaltic response to stimulus and in susceptible individuals, to result in pain and diarrhea.

The nature of the peristaltic response is such that it may readily be stimulated under a variety of conditions with corresponding variations or additions to the general symptom picture. The taking of cold or excessively hot foods or liquids into the stomach may provide a thermal stimulus and result in pain occurring immediately after the ingestion of food or liquid. Lesser degrees of this type of response may be experienced by the patient only as a feeling of fullness and pressure so that he complains that he feels filled up as soon as he starts to eat, decreases his food intake correspondingly and loses in weight. In other individuals the ingestion of warm foods or liquids may have the effect of converting the stomach into a hot water bottle, its close proximity to the colon resulting in a soothing thermal effect. The patient may thus report relief of pain by food taking, in this manner simulating

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the food relief of the pain of peptic ulcer. The mechanical stimulus from jolting or jarring may cause the pain to be initiated or aggravated by exercise. The conditions of life from day to day are such that it is frequently impossible to dissociate the effect of exertion from that of fatigue, anxiety and other emotions because so many factors act simultaneously.

Diagnosis. In the recognition of this type of pain a carefully elicited history is of great importance. The majority of patients have learned by daily physiological experience to recognize the sensations which are associated with increased peristaltic activity preceding bowel movement and the question, "Is this pain associated with a desire for a bowel movement?" should regularly be asked concerning any abdominal pain of uncertain origin. Especially when the bowel contractions cause an increase in pressure in the sigmoid and rectal segments, the patient will definitely associate his discomfort with the sensation of desire to defecate. In many instances the use of the bowel distension enema or so-called "test enema" will help to identify the source of the patient's pain. For this purpose the patient is given a large enema of plain water, introducing a small amount at a time until the bowel is distended and the patient's original distress is thereby aggravated or modified or a new and different distress has been produced by the enema. The patient should be carefully instructed before the enema is started that its purpose is not merely to empty the bowel but that the enema is given as a test to enable him to compare a known bowel distension distress, thus artificially produced, with the pain he was already experiencing. Similar observations may at times be obtained with the barium enema used in the course of the roentgenologic examination. The contraindications to the use of this method will manifestly include such acute inflammatory processes as appendicitis, diverticulitis and most of the ulcerative bowel lesions.

In the diagnosis of the obstructive bowel lesions, the neoplasms, the ulcerative lesions, and the non-ulcerative inflammatory processes, the painstaking examination of feces by chemical, microscopic and bacteriologic methods are indispensable as is also a thorough roentgenologic and proctoscopic examination. The limitation of time upon this paper precludes a detailed discussion of laboratory findings but there are a few points worthy of brief emphasis. The presence of occult blood in the stools on a meat free diet is highly significant and negative reports are reassuring in helping to exclude the presence of carcinoma, polyp and ulcerative lesions. It is especially important, however, to remember that tuberculous lesions of the bowel show very little tendency to bleed. Even with very extensive ulcerative tuberculosis of the ileum and colon, the examination of the stools for occult blood may be persistently negative. Fortunately, from the standpoint of diagnosis, practically all of the other ulcerative lesions of the colon and the neoplasms tend to show persistently positive tests for occult blood. Macroscopic blood in the stool occurs only when the bleeding lesion is low in the bowel or when there is an active diarrhea. Blood changes in color and disintegrates quickly when in contact with the bowel content and after a short time is no longer recognizable as gross blood though it will still give a positive benzidine reaction. The oozing of small amounts of blood from the surface of an ulcerating carcinoma causes macroscopic blood in the stools only when the tumor is in the rectum or sigmoid. The occurrence of pus in the stools as a macroscopic or microscopic finding, indicates the presence of an ulcerative lesion or the perforation of an abscess into the lumen of the bowel. As a rule, the processes which give rise to blood or pus in the stools will also produce sufficient anatomical alteration to produce characteristic roengenalagic changes. Proctoscopic or sigmoidoscopic examination will, in many instances, provide a direct visualization of the responsible lesion. In that group of patients who present a history of allergic manifestations or a history of pain or distress following certain individual articles of food the skin tests for protein sensitization may prove helpful. However, in testing a large series of patients our own experience has been that clearcut protein sensitization has proved of far less frequent occurrence than earlier publication would seem to indicate.

Because pain originating in the colon may occur at any time, in any part of the abdomen and of any severity, it may readily simulate practically any other type of abdominal pain and must be considered in the differential diagnosis of all cases of abdominal pain. The relief of pain by

the taking of warm food has frequently simulated the pain occurrence of peptic ulcer. The less severe attacks of appendicitis and gall bladder disease are very often simulated by the distress of a bowel colic. Even the lumbar pain of a renal colic may be reproduced by pain in the colon. The pains of lead colic may at times be very similar to those of gastric crises of tabes. Manifestly a careful physical examination will frequently furnish the necessary evidence for differentiation. Simple irritation of the colon is as a rule associated with little or no increase in muscle resistance and only the more acute inflammatory lesions such as diverticulitis, pericolic abscess, etc., are likely to show definitely localized muscle defense reaction. The latter will almost always present abnormalities of roentgenologic findings, blood, pus or mucus in the stools, etc. Some measure of the irritability of the colon can be obtained by palpating the colon in the right and left lower quadrants, rolling it under the palpating fingers to determine the degree of spasticity, etc. The present tendency of lay patients to self medication with cathartics for any kind of abdominal pain frequently results in the development of a cathartic colitis in an individual who already has a localized organic lesion of the bowel (e. g., carcinoma). This combination of a generalized and a localized bowel condition produces a diagnostic problem which is frequently quite difficult.

Treatment. The limitation of the time allotted to this paper does not permit a full discussion of the treatment of the organic and the functional disorders of the colon. Since the treatment of the dysenteries and the ulcerative bowel lesions has received so much attention in recent medical literature, it seems worth while rather to consider the milder inflammatory and simple irritative bowel conditions.

In the care of the commoner type of so-called "colitis" or irritable colon the problem is rather one of management and of education than of radical or aggressive treatment. Exogenous irritants of all kinds are to be excluded as far as possible. Since cathartics are among the chief offenders in this group, it is expedient that they be stopped and the patient taught the fundamentals of the normal dietetic management of the bowel. It is not sufficient for the physician to assume direction of the diet. This may be the quickest way to regulate the bowel action by means of diet but if the patient has not been educated in the principles of diet management he is likely to revert to his laxatives as soon as he is no longer under direct supervision, and thus undo all that has been accomplished. A simple record of the quantity of vegetable and fruit used in the diet and the type of stool resulting has often proved helpful in the education of such patients. Because of the parallelism between degree of peristaltic activity the pain or distress resulting, and the water content of the stool, it is usually expedient to restrict the diet to include only that quantity of roughage which can be tolerated without producing loose stools. In doing so it is essential that the diet prescribed should provide an adequate caloric intake and adequate protein, mineral and vitamin intake. While this can usually be accomplished by diet alone it is sometimes necessary to add specific vitamin preparations. Those patients who have demonstrated allergic sensitivity to certain articles of food should exclude such foods.

There are many drugs which occasionally prove helpful but there is none which finds universal applicability. Perhaps belladonna and its derivatives and the bromides or other simple sedatives prove the most widely useful. The administration of calcium as suggested originally by Haskell and Canterow[3] with parathormone has proved valuable in lessening the degree of bowel irritability in obstinate cases of ulcerative colitis and is used less frequently in the non-ulcerative forms. External application of heat in various forms and, in some cases, the deeper heat produced by diathermy may add both to temporary palliative relief and more permanent progress. The neurogenic factor is one which has not been sufficiently appreciated. It is a common experience to see a patient follow a strict regime for weeks in order to control the manifestations of an irritable colon and then go on a vacation in the country for a month during which he can eat anything and do everything, only to find the old trouble recur when he returns to the city and the office grind. Frequently the anxiety of the patient over his own condition is sufficient to provide the neurogenic factor and result in a vicious circle. Reassurance plays an important part in the treatment of such patients but it is not suf-

3. Haskell and Canterow: Calcium and Parathyroid Therapy; Am. J. Med. Sc., 181: 157, 1931.

ficient to merely say "This thing is not serious. You are going to be all right." It is necessary to devote sufficient time to the logical explanation of the patient's manifestations to give him some understanding of their mechanism. Much depends upon the judgment of the physician in estimating the intelligence of his patient in order to determine how far one may go into detail without confusing the patient and adding to his anxiety. Regulation of the patient's mode of life with prescribed rest periods, recreative exercise and limitation of periods of work will prove helpful in many cases. In others the result can best be obtained by the establishment of a program of short vacation trips at frequent intervals as contrasted with the more usual single vacation per year. Those peaks of emotional stress which can be anticipated or recognized can sometimes be offset by a tightening of the dietary regime at that time and an exacerbation of symptoms thereby prevented. Occasionally it will be found that the nervous stress responsible for the difficulty can only be removed by a social or occupational readjustment. The highly emotional man or woman with an irritable colon, readily influenced by neurogenic factors, should not attempt to hold a position in the "information bureau" at a railway station or the "complaint division" of a department store. Under present economic conditions, however, changes of occupation or social status are far easier to prescribe than to produce and some of the emotional stresses will perhaps require a study of ornithology in the attempt to differentiate between blue eagles and other blue birds.

X-RAYS IN THE DETECTION OF PATHOLOGY OF THE CERVIX, CORPUS UTERI AND OVIDUCTS.

B. H. Orndoff, M. D.

CHICAGO

The diagnosis of pathological conditions of the pelvic genital organs, and the decision to institute one or another therapeutic measure has in the past been derived, for the most part, from a careful consideration of the history together with findings elicited by inspection and palpation. It is true that from time to time considerable aid has been contributed by research in the fields of bacteriology and some other lines of laboratory investigation, but it was not until x-rays were introduced into this field of diagnosis that it became possible to eliminate much in the way of the speculative interpretation of indefinite findings. It appears at present that data can be developed by careful and complete x-ray examinations, which offers more precise aid than any or all other methods of investigation, probably not excepting laparotomy and surgical examination, in disclosing the true significance of doubtful pelvic findings. The detection of the presence of a distinct disease entity is very often not sufficient. We must be able to determine the presence of anatomical variations and abnormalities and to ascertain with reasonable certainty the presence of normal physiologic alterations to which these organs are subject, in order that the presence of true pathologic conditions can be differentiated. Finally, the plan for therapeutic management, the most suitable surgical procedure, the character of the irradiation, whether by radium, x-rays or both; in fact, the application of any form of treatment carries greater hope of success when the physician is armed with correct diagnostic data upon which to draw conclusions.

The importance of a thorough understanding of the history and the data developed in a preliminary physical examination of the pelvis is universally acknowledged. This examination should always include inspection of the vulva and the perineum, with bimanual vaginal and sometimes rectal examination, together with inspection of the cervix uteri and the use of the intrauterine probe, as the case may require.

The roentgen examination consists essentially of two parts. First: The study of x-ray films made of the pelvic region together with fluorescent screen findings, which have been supplemented with bimanual palpation of the organs and sometimes the insertion of opaque instruments within the organs as the case may require. Second: The x-ray examination of the organs following the introduction of a contrast media within the viscera, or around the viscera, or both.

The technical difficulties encountered when introducing a contrast media into the pelvis, whose density is less than the pelvic viscera, or the introduction of a contrast media into the cavities of the pelvic viscera, whose density is greater than that of these organs, has been so perfected

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that at the present time they constitute routine procedures in the practice of many radiologists and gynecologists.

Uterosalpingography after the cavities in the pelvic genital organs have been filled with a contrast media, with or without pelvic pneumoperitoneum, in selected cases has been proven to be a safe procedure. Cases possessing contraindications are few, if any, when the proper care is exercised and a suitable technique has been mastered. Pregnancy, menstruation, malignancy, acute salpingitis and acute gonorrhea have been mentioned. In the course of our work, these examinations have been conducted in many patients who possessed at the time one or more of these conditions, with the exception of acute gonorrhea. It may appear bold, but I believe I can state that we have instituted this examination in all cases where diagnostic aid educed by this method seemed essential, and we are not aware of a single case in which an undesirable complication arose as the result of the diagnostic procedure.

The credit for priority in uterosalpingography must be given to Doctor Cary of Brooklyn, who in 1914 made the first x-ray examination of this character, after introducing colargol into the uterus and oviducts. Following the work of Cary, Beck's paste was introduced by Doctor Emil Beck and myself in the early 20's, and there were other workers using various kinds of contrast media in many of the medical clinics in the United States and Europe. These examinations, however, became a real clinical possibility, and their usefulness was definitely established in this country by Forestier of France, when he delivered lectures on this subject before many radiological bodies and medical clinics during the winter of 1925-26. Furthermore, the book published in English by Sicard and Forestier on "The Use of Lipiodol in Diagnosis and Treatment" has done much to popularize this work in the United States.

The Cervix Uteri. The frequency and the importance of diseases of the cervix uteri are not generally recognized. It appears that only a few gynecologists and radiologists give more than passing concern to these conditions in connection with their relation to the general health of the patient, or their significance as a premalignant lesion. The cervix is more frequently the seat of pathology in women who have born children, but it must not be forgotten that it occurs in all classes, after puberty.

The cervical canal, demarcated at each end by the external and the internal os, possesses a very generous glandular system in its mucosa. The structures of the cervix are subject to violent trauma during the natural functions and very frequently the damage sustained remains without complete repair. The character of the lesions range from low grade endocervicitis to gland cyst formations with pocketing and other degenerative tendencies and finally granular hyperplasias, polyps, and adenomatous formations. The cervix should become a point for close vigilance in all women in order that a pathological lesion may be recognized early and eradicated.

Trachelography requires no technique, which cannot be very efficiently conducted in any regular radiological practice. A small canula which has been passed through a perforated rubber cone is introduced into the cervix through the external os. The rubber cone is pressed against the external os and held sufficiently firm to prevent the contrast media, which is introduced through the canula, from passing back into the vagina. Fluorescent screen observations and trachelography is done in such a way that all of the findings may be elicited and a permanent record established. While it is true that the cervical canal may be explored very successfully with a uterine probe while the cervix is under inspection through a vaginal speculum, the character and the extent of the filling defects in a trachelogram furnish more reliable data than can be secured in any other way.

The Corpus Uteri. Uterography becomes highly impotant because the conditions in the uterus which can be shown on a uterogram can scarcely be indicated by any other method. Moreover, conditions of very serious importance to the patient may be definitely located by this method, positive diagnoses secured, and the condition eradicated before the usual clinical symptoms and signs have developed. In other words, it is possible to diagnose and eradicate a disease from within the uterus, before it has become a clinical entity. The technique of introducing contrast media into the uterus for uterography requires considerable care and precision in order that all of the findings may be elicited. The quantity introduced, and the pressure used during the observations, the positions of the patient, the alter-

ation of the position of the uterus within the pelvis by palpation or traction during the observations, are some of the points which greatly aid in developing the proper data for diagnostic purposes. Uterograms must show the different surfaces of the contrast media while it is being held within the uterus. At the same time the larger and smaller filling defects are studied under the fluorescent screen, and the exact location, position, mobility and the contour of the cavity within the uterus are observed. A study of the relation of the contrast media with the shadows of the uterus itself, and their relation to other tissue densities within the pelvis, such as tumors or other organs, are almost always facilitated by palpation from the vagina or rectum.

When the filling defect in the uterogram denote the presence of tumor growth, biopsy and microscopic examinations become almost imperative. For this purpose, standard surgical methods and the use of the curette have proven to be so dangerous that it becomes necessary to eliminate them from general practice. Biopsy can be performed by the use of a special instrument, devised for this purpose. It may be introduced into the uterus and directed by fluorescent screen observation to the point causing the filling defect. A specimen for microscopic examination can be obtained without incurring the dangers of a curettage. The biopsy specimen is secured within the instrument, and separated from the uterus by a proper electrical cutting current, the hemorrhage controlled by electricity, and if the tumor is malignant, the danger of creating metastasis has been minimized. The electrical current may be secured from any surgical current generator of standard make. Biopsy by this method, not only minimizes the hazards to the patient, but is far more reliable than a microscopic diagnosis, which depends upon the examination of bits of tissue selected from those removed in the surgical procedure of curettage in the early cases. Tumors, causing small filling defects in the uterogram, may be submitted to biopsy in this manner, a positive diagnosis secured, the case be subjected to treatment, and the progress of regression following treatment by irradiation with radium and x-rays kept under observation, in a manner not possible by any other method. A study of a series of uterograms, covering an extended period following irradiation, gives a reliable check on the problem of when adequate treatment has been instituted.

The Oviducts. Salpingography requires practically the same technical procedure necessary in uterography. Bimanual vaginal and rectal palpation during fluorescent screen observations should be employed. The patulousness or stenosis of the oviducts at the intramural portion, the closure of the ostium abdominale or occulsion at any point along the oviduct may almost always be determined. Where there has been a fluid accumulation in the oviduct, as in hydrosalpinx or chronic salpingitis, the characteristic droplets, occasioned by the introduction of an iodized oil, are usually quite easily observed. The problem of sterility occasioned by occlusion at some point along the course of the oviduct is important, but of still greater importance is the determination of the site for salpingostomy, when operative intervention is instituted for the purpose of correcting sterility. Amputation of the oviduct seldom creates an ostium abdominale. A longitudinal incision into a more dilated portion, which may be located by a study of salpingogram, becomes a much more successful surgical procedure. Salpingography is frequently very helpful in the diagnosis of eccyesis, particularly the gravid oviduct.

SUMMARY

Uterosalpingography is a safe procedure and may be instituted in practically every case where accurate diagnostic data is required.

Special apparatus has been devised, but the technical requirements may very well be supplied by the common office equipment of a radiological practice.

There are practically no real contraindications where data, which can only be obtained by this method, is required.

Neglect of the pathologic cervix by physicians seems almost criminal because of its profound influence on the general health and its importance as a premalignant lesion.

Reliable microscopic diagnosis may be secured from early lesions in the corpus uteri by the use of a biopsitome, and the dangers incident to the use of a curette are almost completely eliminated.

Sterility, as the result of occluded oviducts, can be ascertained and its correction greatly facilitated by choosing a point along the oviduct

where proper operative intervention may promise good results.

Uterography seems to be the only method available whereby an accurate check may be kept on the reaction to irradiation of neoplasms and other lesions of the uterus.

DISCUSSION

Dr. Robert A. Arens (Chicago): I believe the previous speaker was a little modest in reciting some of the history of this work. I want to state publicly that in my opinion Doctor Orndoff has done as much as anyone in this country or in the world, in this particular phase of our work. He helped to get us started at Michael Reese some years ago, giving us all the information he had acquired and giving it freely. It was a real inspiration to the speaker. I agree with Doctor Orndoff regarding the safety of the procedure. We have had several things happen, such as the introduction of iodized oil into the vascular spaces in the uterus. The roentgenograms showed the iodized oil in the uterine vessels, going up into the abdomen, etc. While we were very much perturbed at the time, about this untoward event, nothing occurred insofar as the patient was concerned, and I have seen several such cases since. It is really a safe procedure.

This work is of extreme importance in the many instances in which there is a difference of opinion between gynecologists, and work of this type demonstrates the fact that bimanual examination of the female genitalia is not always satisfactory, especially when the patients are obese.

Doctor Orndoff called attention to iodized oil in the peritoneal cavity. I feel it is extremely important where tubal patency is involved that we inject sufficient iodized oil so that we get actual evidence of intraperitoneal spill; otherwise we cannot arrive at any other conclusion except that the tube is patent to the fimbriated end. It has been our custom to follow the original films wth roengenograms taken twelve to twenty-four hours later. Sometimes it takes twenty-four hours for iodized oil to pass through the tubes into the peritoneal cavity so that it can be recognized as a coating on the intestine, which then presents the characteristic picture of intraperitoneal spill.

Doctor Stein and I have been interested particularly in this work from the standpoint of combining pneumoperitoneum plus iodized oil injections, which gives the absolute maximum information which one can expect from this type of examination. This combined method visualizes both the external appearance of the internal genitalia and also the lumen.

I would like to ask Doctor Orndoff what his experience has been concerning Thorotrast, which has been advocated for introduction into the uterus, allowing it to remain for a short time and spilling out, and which produces a coagulum on the mucosa. Being a Thorum compound, it casts a shadow on the film. However, recently, in abstracts appearing in the *Journal of the American Medical Association*, I have noted articles by certain European observers showing that in experimental work the introduction of Thorotrast into the peritoneal cavity was prone to produce peritoneal sarcoma. As a result, we have been rather disturbed over this situation, and I wonder whether Doctor Orndoff could give us any further light on this matter. If it is capable of doing that in the animal, I feel we should go very cautiously in its use.

CAUSE FOR REMOVAL OF THE EYE

LEO L. MAYER, M. D.
CHICAGO

Studies on blindness in this and other countries have been fairly numerous. Likewise figures and results of eye injuries are frequently reported. However, up to the present time no inquiry has been made as to the cause for the removal of one eye or its fellow.

It is clear that the removal of one eye enhances the chances of blindness, and if the remaining eye has subnormal vision, or becomes injured or diseased, it is obvious that a condition of near or actual blindness exists. In such a gathering as this it is superfluous to emphasize that the current laws concerning Workman's Compensation has stirred the employer and the insurance carrier to a decided regard for the employees with one eye only.

The records of the Illinois Eye and Ear Infirmary, in Chicago, presented an occasion for the study of the why and wherefore of the removal of an eye. This institution, supported entirely by the State, renders care without charge to all residents of the State having eye, ear, nose and throat conditions, who are unable to pay for private medical attention. Undoubtedly this institution takes care of more eye conditions than any other in this part of the country. Built originally in 1858, then destroyed by the great Chicago fire, the present location has been in use for the past 61 years. The outpatient department has six eye services, one for each day of the week, with the exception of Sunday, and, in addition 100 beds are available in the combined hospital for the use of eye patients. In addition to the State appointed Chief of Staff, each of the 6 services is manned by one attending ophthalmologist, two associates and two adjuncts. Several services have more members than this quota.

From the Illinois Eye and Ear Infirmary. Service Dr. Thomas D. Allen.

Read before the Section on Eye, Ear, Nose and Throat at the Annual Meeting of the Illinois State Medical Society, Rockford, May 22, 1935.

There is an interne for each service and for every two services a resident. The orthoptic service is a separate unit available to all.

We are necessarily concerned only with the eye patients, hence all figures quoted do not include *the patients of the ear, nose or throat services.* This study concerns the records of the entire year *from July 1, 1933 to July 1, 1934,* during which time approximately 48,000 eye cases were admitted to the outpatient department. *Of these 17,000 were new,* never before registered at the Infirmary, the other 31,000 *being patients who were seen in previous years.* Most naturally the greatest majority were having *complaints attributable to errors of refraction.* This statement is included here simply to bring to mind that in the choice of ophthalmology as the field for the practice of medicine, refraction must be regarded as paramount.

Many of these patients were hospitalized, some for study and care of medical problems of the *eye, and others for the surgical phase. In all* there were 1350 operations for various conditions from chalazion to exenteration. Conditions requiring the services of a neurosurgeon are not treated at the infirmary. Four hundred operations *were done for cataract and 100 for glaucoma.* This will give some conception as to the number and kind of operations included in the *1350.*

Now as to the number of eyes necessitating removal. A total of *105 eyes, 66 right and 39* left warranted removal; 2 by exenteration, 9 by evisceration and 94 by enucleation. Thus almost 8% of the operations were for the removal of an eye.

In an analysis of the causative factors it is interesting to note that there may be an immediate reason for removal, as for example, a destructive injury, or a secondary cause, as in the case of glaucoma following cataract extraction. *Infection following any type of operation involving* the globe, with ensuing panophthalmitis is another secondary cause. The following table is given so that reference may be made as cases or groups of cases are later described:

	Number	Percentage
Eye Patients	48,000	100.00
Operations	1,350	2.81
Removals	105	7.90
Exenterations	2	1.90
Eviscerations	9	8.90
Enucleations	94	89.00

As in all statistical studies of this type much is gained by the author, facts too numerous and overburdened with figures to include in a paper such as this. However, certain important findings may be given in table form and thus the *aggravation of persuing figures is somewhat eliminated.* The age incidence is of interest. Removal *of the eye was necessary between the ages of* several weeks to nearly eighty years. They may be grouped in decades as follows:

0— 10 years	*10*
11— 20 years	11
21— 30 years	7
31— 40 years	*19*
41— 50 years	16
51— 60 years	17
61— 70 years	15
71— 80 years	10
81— 90 years	*0*
91—100 years	0

*The average for the 8 decades in which remov*als occurred is 13 so that it is noted that fortunately enough the higher incidences are found between the 30th and 70th years.

In the table to follow are listed etiological factors. *Some may have been the initial or exciting* cause, others are contributing or immediate causes, and also more than one factor may have been responsible in a single case;

Enophthalmitis		9
Injury	past	37
	immediate	14
	cataract	17
Operations	glaucoma	18
	tumor	5
	cataract and glaucoma	6
Foreign body	past	10
	immediate	1
Chronic iridocyclitis after injury		14
Glaucoma after injury		1

Some explanation of the table is in order.

Enophthalmitis, indicating a suppurative condition of one or more of the intraocular tissues occurred as an endogenous infection during pregnancy, in measles and in influenza. It also occurred after cataract extraction.

A list of the inciting instruments which caused the injuries in these cases are as follows; scissors; knife; milk bottle; arrow; gunshot; pieces of steel, wood and glass; birth trauma by forceps; lye; calcimine; dynamite cap; screw driver and bed post.

Of the five eyes removed because of a definitely diagnosed or suspected tumor all were verified on histo-pathologic section. In only one case, in which absolute glaucoma was the diagnosis, was

an unsuspected intraocular tumor found on section.

Among the 400 eyes operated on for cataract in only 4 was removal necessary because of subsequent acute purulent infection.

The tumor group included sarcoma of the choroid, retinoblastoma (glioma) and granuloma of the orbit. Chronic iridocyclitis was the secondary cause for removal of injured eye in fourteen incidences. Other injured eyes were removed for cosmetic reasons, painful glaucoma, threatened or diagnosed sympathetic ophthalmitis and dislocated or cataractous lenses.

The corneal ulcers were serpigenous, dendritic, septic, and one due to keratitis with lagophthalmos following trigeminal neurectomy.

Subsequent to cataract operation, in addition to infection mentioned previously, eyes were removed because of chronic iridocyclitis, glaucoma, loss of vitreous, iris prolapse and choroidal hemorrhage with their pain and discomfort. One eye was removed because of an obstinate tuberculous scleritis.

Purulent infection followed operation for glaucoma only twice, additional removals being necessitated by the pain of chronic iridocyclitis or absolute glaucoma.

Summarizing it may be pointed out that measures to lessen the incidence of loss of eyes should be directed to prevention of injuries primarily. A study of these eye injuries coming to late operation emphasizes the double need for guarded prognosis together with better methods for the immediate care of injuries. Patients with cataract and also those with glaucoma have about an equal low incidence of removal following operation. Ulcers of the cornea, especially those of the dendritic type, have a relatively high count for loss of the eye, and it behooves us to give them the best of care and attention. Infection following operation occurs seldom in this series.

Of the 105 eyes removed 65 or 61% had a definite history of previous injury.

No eyes were removed following gonorrheal ophthalmitis. This would seem to indicate that the treatment of such was very effective or that the new law requiring the use of a silver nitrate preparation in the eyes of the newborn, or possibly both these factors, have decreased the incidence of blindness due to gonorrhea. In only one record is a note made to the effect that because of a suspicion of ensuing sympathetic ophthalmitis removal of the eye was indicated following injury. Perhaps this indicates that a more conservative treatment of such cases is now in vogue because of our ability to observe changes earlier due to better control of the patient and the use of the slit-lamp.

No eye was removed on account of trachoma nor was there any case of rectinal detachment in this series.

Correlating this study with the general causes for blindness in the State of Illinois as reported by Dr. Wilder in the January, 1931, issue of the *American Journal of Ophthalmology* it will be noted that trachoma which accounts for so large a number of blind has no place in our study; senile cataract leaves a moderate percentage of blindness following the complications of operations; glaucoma is likewise in the same category; optic atrophy most naturally is not found in our series; trauma has a relatively larger percentage in our series; and opacities of the cornea not due to trachoma is relatively represented.

Many of the injured eyes were removed months and even many years after the initial trauma. It may be said that the prevention of injury to the eye is the greatest single factor to reduce removal of an eye.

DISCUSSION

Dr. J. E. Lebensohn, Chicago: This is one of the most interesting statistical papers this Section has had the good fortune to hear for some time. Fortunately in enucleations all the data is available at the infirmary; and as the specimen generally goes to the pathologist, it is easier to get data on this subject than on most others. I should like to stress the number of enucleations after operations for glaucoma and cataract, which shows most dramatically the hazard of these operations.

In painful absolute glaucoma, where the question of intraocular tumor can be definitely ruled out, it is possible with the operation of optico-ciliary neurectomy to relieve the patient and still keep the eyeball. This is preferable to the alcohol block procedure, in that the ocular muscles are not affected.

In leucomas of the cornea, the eyeball may often be made to look fairly well by staining the cornea with gold chloride, and thus avoid an enucleation for cosmetic reasons merely.

Dr. Leo Mayer, Chicago (closing): Dr. Theobald received a copy of my paper and was to have discussed this paper, and this is a note which she left as she had to go back early: "You have a very interesting paper and I am sorry I cannot be there to discuss it. Only 87 eyes were received in the laboratory in the period stated in your paper. Please look over your statistics. I am compiling statistics for a longer time, and it would be very confusing to future generations if there was this

discrepancy in figures." In spite of the fact that Dr. Theobald is very hopeful of the receipt of all eyes enucleated at the infirmary, she does not get them all. I found this discrepancy and I shall explain it to her. An additional factor which Dr. Theobald overlooked is the fact that I have reported also eyes eviscerated which obviously the laboratory cannot hope to receive.

MEDICAL ADJUVANTS IN THE MANAGEMENT OF INCREASED INTRAOCULAR TENSION

JAMES E. LEBENSOHN, M. D.
CHICAGO

Prior to 1857 when Graefe announced the tension-reducing action of iridectomy in glaucoma, no medical or surgical recourse was known to relieve the acute distress or halt the progressive blindness of this dread disease. Hippocrates had used the word glaucoma in referring to a type of incurable blindness, but the essential nature thereof—increased intraocular tension—was not appreciated until after William Mackenzie in his text of 1830 explicitly emphasized this feature in the differential diagnosis of glaucomatous amaurosis and cataract. The first to recognize acute glaucoma was William Lawrence, who in 1826 identified the "arthritic iritis" of Beer as this condition.

Graefe had popularized the use of atropin in iritis, but in 1868 warned against its malign action in glaucoma. This observation gave the suggestion for the later use of miotics. The report of the tension-reducing property of eserine by Laqueur in 1876 was succeeded by A. Weber's introduction of pilocarpine the following year. Thus surgical measures for the relief of glaucoma had been in practice for about twenty years before medical management entered the scene. Since the advent of miotics the most valuable medical innovation has been the introduction of adrenalin as an aid in the treatment of non-congestive glaucoma, though the caution should be here given that its use in all other types of glaucoma is definitely deleterious.

In acute glaucoma, not only does preliminary medical management place the eye in a better condition for surgery, but occasionally, where the general condition of the patient renders operation inadvisable, may be sufficiently effective to obviate the urgency of further intervention. The patient with an inflammatory explosion of acute glaucoma is best immediately hospitalized, and for the succeeding 24 to 48 hours the high intraocular tension should be strenuously combated by measures which aim to produce miosis, sedation and depletion:

1. Miotics are administered on the first day hourly or half-hourly, and on the second day every hour or two. The tension generally reaches its lowest level on the third day, and operation should not be postponed later than then. The miotic mixture originally suggested by Peter Callan which combines eserine and pilocarpine with the lymphagogic and local analgesic action of dionin is recommended in these proportions: Rx, Eserine salicylate, gr. ss; Pilocarpine hydrochloride, gr. ij; Dionin, gr. v; Aqua destillata, ℥ ij.

2. During this period the hypodermic injection of morphine (gr. 1/6 to gr. 1/4) every six hours is valuable both as a sedative, and as an additional factor in effecting miosis. The body should be kept warm by adequate covering. In addition, salicylate should be administered freely to maintain analgesia, and produce diaphoresis.

3. Local adjuvants:

(a) Heat tends to relieve pain and reduce tension. For this purpose is available the hot compress, electric pad, Altherm chemical pad, infrared radiation, or diathermy. According to Law,[1] diathermy finds a most valuable application in subacute glaucoma. A current of 600 m.a. for ten minutes daily is advised. In a few days a quiet eye, with tension reduced, often results, upon which operation may be safely performed.

(b) Leeches applied near the outer canthus reduce local congestion. With the revival of their use in general surgery, their more frequent employment by ophthalmologists is probable.

4. Further depletion can be effected by:

(a) Fluid restriction. Heegard and Larsen[2] have demonstrated that the intraocular tension of glaucoma patients responds markedly to the water intake.

(b) Saline aperients. In severe cases four to six ounces of a 25% solution of magnesium sulphate may be given as a retention enema, as in combating intracranial tension.

(c) Diuretics. Particularly marked diuresis

From the Department of Ophthalmology, Northwestern University Medical School.

Read before Section on Eye, Ear, Nose and Throat. Illinois State Medical Society, May 22, 1935.

can be obtained with the newer diuretics—novasurol or salyrgan.

5. In the most drastic cases which do not adequately respond to the above measures there are further available the following means of reducing tension:

(a) Venesection, as recommended by Blatt.[3] From 100 cc. to 300 cc. of blood can generally be safely removed.

(b) Acetyl choline. In acute glaucoma an intramuscular injection of 30 mg. acetyl choline (0.5 cc. of a 6% solution) may dramatically lower the tension 20 points or more in one to two hours (Evans and Evans[13]).

(c) Intravenous injection of concentrated saline. Duke-Elder recommends that 35 cc. of 30% sodium chloride solution be given, and administered slowly so that the injection time consumes not less than ten minutes. The reduction in chamber pressure is accompanied by a marked fall of blood-pressure, and extreme thirst. No fluids however are to be given.

In chronic non-congestive glaucoma, medical treatment should be continued only in those cases in which the tension can be kept constantly below the physiological maximum of 25 mm. mercury, and who can be relied upon to report regularly—at least once a month — for a periodic study of the tension, field, and visual acuity. In glaucoma simplex, an increase of tension precedes changes in the field, and should be the primary object of investigation. Inasmuch as intraocular tension is normally highest in the morning, an effort should be made to measure the tension at that time. Where the tension remains permanently normal under miotics, no further advantage is to be gained from surgery. Holth[4] of Oslo, Norway, has kept some eyes normal with pilocarpine for over twenty years. The earlier the diagnosis, the more probable the success of medical management; however, once it is evident that the tension cannot be adequately controlled, surgery should not be delayed. The medical aids available in glaucoma simplex are:

1. Miotics. For continued use pilocarpine is better tolerated and acts more evenly than eserine. The solutions used should be sterile to avoid conjunctival irritation. After the tension has been controlled, the weakest concentration that will maintain miosis should be determined, and the strength (which may vary from ½ to 2%) only increased as indicated. Unless the patient is under constant observation, it is probably safest to add some eserine to the pilocarpine solution, inasmuch as some batches of pilocarpine not infrequently are contaminated with jaborin, a mydriatic isomer (Lilienfeld).

2. Massage. The patient should be taught to massage his eyes in the following manner two to three times daily. Elliot[5] recommends that the index fingers be placed on the upper lid as far apart as possible while the patient looks downwards. Each finger then exercises alternately a quick light pressure towards the center of the eye.

3. Adrenalin. Adrenalin therapy in glaucoma simplex should be limited to those cases in which miosis is effected, but does not sufficiently reduce tension. The adrenalin effect can be secured by one of the following methods:

(a) Subconjunctival injection of the 1:1000 solution (one to three minims).

(b) The adrenalin pack (Gradle). A wisp of cotton which has absorbed four minims of the 1:1000 solution is placed under the upper lid of the previously anesthetized eye and held there for three minutes.

(c) Concentrated adrenalin solution, 2%, is instilled (one drop) either as "links-glaucosan," or from a freshly prepared solution of epinephrine bitartrate. Tablets of the latter are available (Suprarenin, Metz), two of which dissolved in 0.1 cc. distilled water yield a 2% solution.

Following the caution of Gifford,[6] several drops of 0.5% eserine salicylate should be instilled at intervals before and after the adrenalin administration to counteract its mydriatic action. The tension reducing effect continues for three to seven days or more, after which the treatment can be repeated. Adrenalin is used merely to enhance the action of the miotics, and their instillation at home should not be interrupted. Hamburger[7] reports cases under this regimen in which tension, fields, and visual acuity have remained normal for five years.

4. Hygienic and systemic measures. The patient with glaucoma simplex should avoid overfatigue and especially work that involves stooping and straining. The bowels should move regularly, and excesses in eating and drinking avoided. Sedatives and soporifics are indicated if there is anxiety or insomnia. Burnham[8] stresses systemic medication. He seeks to secure prolonged sympathetic stimulation by a series of

daily injections of pilocarpine, increasing from 1/6 to 1/3 grain, for ten to twenty days followed by an interval of six weeks. In the rest period the patient takes : one-half hour after meals a dose of gray powder, gr. ij with Dover's powder; and one-half hour later, sodium iodide gr. x and sodium bromide gr. v. With this "combined treatment" he believes that most cases of early glaucoma simplex can be adequately controlled; and in the cupping variety he regards the medicinal treatment as more trustworthy than surgery. To promote vascular integrity, Evans[12] prescribes a liberal intake of vitamin C, as secured from oranges, grape-fruit, and lemons, and interdicts coffee, tea, cocoa, and such drugs as luminal, pyramidon and cinocophen. It might be benencial too if calcium were administered, and the sodium chloride intake restricted. A noteworthy fact also is that favorable effect on tension has been observed from combating sympathetic dysfunction through the oral administration of ephedrine (gr. 3/8 t.i.d.), or thyroid (gr. j., t.i.d.) or pilocarpine (gr. 1/30, t.i.d.) (Hardesty[14]).

For iritis glaucomatosa, eserine, adrenalin, and paracentesis are contraindicated, as they are each productive of unfavorble after-reactions. The tension in iritis glaucomatosa is generally transient, and is best combated by:

1. Adequate treatment of the iritis, including the continued use of atropin, and the administration of dionin, foreign protein, leeches and heat.

2. Reduction of tension can be safely secured by fluid restriction, magnesium sulphate enemas, diuretics, or venesection.

Chronic uveitis with increased tension is often confused with glaucoma simplex. The pupil is usually free, mobile, and moderately dilated. The slit-lamp however discloses an aqueous flare (indicative of increased albumin), a few cells in the anterior chamber, some deposits on Descemet's membrane, and occasionally Koeppe nodules on the iris margin. Prolonged mydriasis is contraindicated, as the thickened iris is inclined to form peripheral anterior synechiae. According to M. F. Weymann, the treatment requires:

1. Control of the underlying etiology, which may be tuberculosis, focal infection, or syphilis.

2. Reduction of intraocular tension. Adrenalin packs can be used, or tabloids of epinephrine (1/8 gr.) can be placed in the conjunctival sac. If the tension remains high, repeated paracentesis is indicated, and if still uncontrolled, an early iridectomy is imperative.

3. When the tension subsides, short acting mydriatics such as euphthalmin and homatropin are prescribed for periodic instillation.

4. Foreign protein therapy of the milder type is beneficial, but violent reactions are to be avoided.

5. X-ray is a useful adjuvant, in a 20% erythema dose, repeated at three to six weeks intervals.

In absolute glaucoma, an alcohol block may be substituted for the operation of enucleation or optico-ciliary neurectomy when one is certain that the condition is not secondary to an intraocular tumor. The procedure recommended by Fejer[9] consists of the following steps:

1. Conjunctival anesthesia.

2. One cc. of 2% novocaine is injected to the right and left of the eyeball in the neighborhood of the posterior pole.

3. After five minutes, the injections are repeated with 80% alcohol. In fifteen minutes the eyeball is entirely anesthetic, though not softer. A marked proptosis and chemosis ensues from the reaction of the orbital tissues. All the ocular muscles are paralyzed, the ptosis being especially pronounced and prolonged.

The post-operative treatment of glaucoma varies with the operation:

1. Immediately after iridectomy, atropine should be instilled, and also on the following day.

2. Immediately after trephining, Elliott[10] avoids any instillations unless the pupil shows a tendency towards upward displacement, when eserine is used. If the tension is down he starts the use of atropine on the third day to avoid a quiet iritis with consequent posterior synechiae. If after operation tension recurs, a preliminary trial of eserine and massage is advised before further intervention.

3. After cyclodialysis, Meller[11] advocates miotics, as the consequent contraction of the pupil should aid in pulling the freed root of the iris away from the angle of the anterior chamber.

In juvenile glaucoma and in most cases of secondary glaucoma, surgical treatment is primarily indicated, and medical adjuvants are of little avail.

310 S. Michigan Ave.

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DISCUSSION

Dr. Harry Woodruff, Joliet: Dr. Lebensohn's paper covers a very vast field—all forms of glaucoma—and as my discussion is limited to three minutes I will not be able to say very much. I approve of many of his methods of treatment. Whatever form of glaucoma may be, you know the tension is the factor that is destroying vision and the longer the tension continues, the greater the destruction of vision. He mentioned the use of saline intravenous injection according to Duke-Elder's experiments, and I think that is well emphasized, not that it can cure, but temporarily the tension can be reduced. No matter what the cause, whether it can be relieved or not by miotics, it can be relieved by 30% salt solution or even 5%. Strange as it may seem, tension in normal eyes can be reduced by these injections. The effect is transient. In a paper in 1931 before the American Medical Association on intraocular hemorrhage, I referred to Duke-Elder's work and also some personal experiences, and in every one the tension was satisfactorily reduced, but the effect lasted only twenty-four hours. However, it is valuable in cases where an operation is to be done and you wish to avoid the complication of intraocular hemorrhage.

Dr. Lebensohn makes a statement that should be positively and definitely opposed; that is regarding the effect of eserine or miotics on cases of chronic simple glaucoma. If you get reduction of tension to within normal limits, you do not operate, according to his statement. Those are the cases where you get the best results by operation. Unfortunately, the patient is relieved and the doctor is relieved and, therefore, does not operate, but you know what becomes of these cases. They do not stay with you for twenty years; they go from doctor to doctor. Consequently the statement made by De Wecker many years ago, that "while eserine never cured a case of glaucoma, it prevents many from being cured" is still true. The patient would be better off if he had reduction in tension by operation and it would not be necessary to continue the use of miotics. The failure to reduce tension by miotics is an indication that you have structural changes in the eye. You have adhesions of the iris to the cornea. Here operative procedure is definitely necessary but the prognosis is not as good in such cases. It is more difficult to get internal drainage or external drainage, and still some operative procedure is necessary.

I would say in closing that if you have a case of chronic simple glaucoma and you can reduce the tension by eserine, by all means operate on that case before these structural changes are too far advanced.

Dr. I. R. Pritikin, Oak Park: Dr. Lebensohn's paper is very complete. With reference to the use of diathermy and heat, lately short wave has been used in place of diathermy, and we find it more effective because it has an effect on the hydration processes that go on. With regard to vitamin C, it is not the vitamin C but other products in the fruit juices which have an effect on the refractive index of the serum. Regarding the restriction of sodium chloride, that will affect the refractive index of the serum, which is changed because of the hydration, and it activates the sluggish movement of the protein particles in the serum that is noted so much in glaucoma.

Dr. M. H. Lebensohn, Chicago: We agree that glaucoma should always be operated on. But if a patient has only one eye, especially when operated on unsuccessfully, one would hesitate to operate. I have one patient whom I have been seeing for nine years, operated on by a competent man on the left eye; the tension is normal but there is no vision. She moved to Chicago about nine years ago and I have been treating her right eye with miotics since. Vision in that eye is normal, tension is normal, and the fields practically the same as nine years ago. She comes in every week or every two weeks and fully understands the importance of doing so. If you have control of the patient and there is only one eye, by all means carry on as long as you can medically.

Dr. Louis Bothman, Chicago: I would like to call attention to one thing that Dr. Lebensohn did not mention. I wonder if any of you have ever used eserine baths in the treatment of an acute glaucomatous attack. We know that in certain cases the tension can be reduced by dropping eserine into the conjunctival sac every ten or fifteen minutes or half-hour intervals. This does not always lower the tension. I have seen some remarkable benefits from eserine baths. This consists of holding the eye in an eye cup containing 1% or 2% eserine or the same strength pilocarpine. I have seen the tension come down from 110 to 30 mm. of Hg. overnight in a case where it could not be reduced by instilling eserine into the conjunctival sac. The patients may have severe pain and nausea

or even emesis, but the treatment does reduce the intraocular tension.

Dr. J. E. Lebensohn, Chicago (closing): I want to thank the various members who have discussed this paper for the ideas with which they have amplified my statements. I perhaps did not state clearly enough that whether or not one should attempt to control a case of chronic glaucoma medically depends very much on the patient; one must not only have the tension under control but the patient as well.

SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS

At the Oct. 28, 1934, meeting of the Royal Society of Medicine of Ghent, Finsterer of Vienna stated that subtotal resection of the stomach is the operation of choice in gastric and duodenal ulcer. In 363 such cases there were thirteen deaths, a mortality of 3.5 percent.

In 920 operations for duodenal ulcer there were thirty-two deaths, a mortality of 3.4 per cent. These favorable results are in part due to the use of splanchnic anesthesia and to the method of anastomosis (Hofmeister-Finsterer technic). In 95.8 per cent of the cases of gastric ulcer, complete cure followed resection. The same was true of 94.6 per cent of the duodenal ulcer cases. Diarrhea following subtotal resection has been observed in only six cases, and even here the diarrhea was of short duration. Finsterer has never seen a postoperative secondary or pernicious anemia. In cases of gastric or duodenal ulcer perforation, the intervention consists merely in closure of the perforation by suture.

In 273 resections for gastric ulcer, microscopic examination revealed the presence of cancer in sixty-three, or 23.1 per cent. The prognosis in these cases is unfavorable. Eleven of twenty-six cases of this kind had a fatal outcome within five years. Jejunal ulcers following gastro-enterostomy should always be operated on radically. The operation should include removal of the anastomotic area, ulcer-bearing area of the duodenum and two-thirds or even three-fourths of the stomach. Of 168 such operations for jejunal ulcer the outcome was fatal in nineteen, a mortality of 11.3 per cent. Operation should not be delayed in cases of gastro-jejunocolic fistula lest the patient die of starvation. One should operate only if there are strict indications. If one has decided, however, to operate, only radical measures should be considered.

"The first, and in some respects, the most important function is—to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession . . . The man who knows it all and gets nothing from the Society reminds one of the little dried up miniature of humanity, the prematurely senile infant, whose tabetic marasmus has added old age to infancy. . . . Why should he go to the Society? . . . It is a waste of time, he says, and he feels better at home, and perhaps that is the best place for a man who has reached this stage of intellectual stagnation. . . ."—*William Osler.*

Marriages

VACLAV GEORGE DVORAK, Chicago, to Dr. Ella Helen Valenta, of Cicero, Ill., October 30.

MARTIN G. ERICSSON, to Miss Martha E. Anderson, both of Chicago, October 26.

MARTIN CARL LINDMAN, Rockford, Ill., to Miss Alice Dorothy Port of Youngstown, Ohio, March 31.

DAVID E. MARKSON, to Miss Esther N. Anderson, both of Chicago, October 12.

CLIFFORD O. MCCREEDY, Aledo, Ill., to Miss Permelia Donaldson of Monmouth, October 24.

Personals

Dr. Charles B. Reed gave a talk on "The Social Security Act" before the Woman's Auxiliary of the South Chicago Branch on December 2.

Dr. A. R. Hollender addressed the Detroit Otolaryngological Society, November 20, on "The Scope of Physical Therapy in Otolaryngology."

Dr. Charles B. Reed and R. R. Ferguson represented the Illinois State Medical Society at a conference of Presidents and Health Chairmen of the Chicago Parent Teacher Associations at the Stevens Hotel, December 3.

Dr. Paul B. Magnuson addressed the Sangamon County Medical Society on December 5.

Dr. Robert S. Berghoff held a heart clinic for Perry County Medical Society on December 5. At the evening scientific meeting of the Society Dr. Berghoff gave a paper on "Common Forms of Heart Disease" and Dr. John B. O'Donoghue, a paper on "Cholecystitis."

Maurice L. Blatt gave a talk on "Neuromuscular Diseases in Childhood" before Will-Grundy County Medical Society on December 4.

Drs. Joseph A. Jerger and John P. O'Neil have endowed an Artificial Fever Therapy Division in The John B. Murphy Hospital.

Louis Rudolph has been appointed Associate Professor of Obstetrics, Loyola University School of Medicine.

Dr. Ben Z. Rappaport addressed the Chicago Society of Allergy, November 18, on "Treatment of Patients Highly Sensitive to Pollen."

Dr. Harry C. Rolnick addressed the Chicago

Urological Society, November 21, on "Retrovesical Sarcoma."

At a meeting of the DuPage County Medical Society in Downers Grove, November 20, Dr. Harry E. Mock, Chicago, discussed treatment of skull fracture.

Dr. Chester C. Guy, among others, addressed the Chicago Pathological Society, November 11, on "Tumors of the Breast in Children."

Dr. Henry C. Sweany discussed "Recent Trends in the Approach to Study of Silicosis" before the Chicago Tuberculosis Society, November 15.

Mr. Homer J. Byrd, Arlington Heights, has recently been appointed superintendent of registration of the state department of registration and examination.

At a meeting of the Chicago Opthalmological Society, November 18, speakers included Dr. Philip D. O'Connor on "Correction of Cicatricial Ectropion by the Detached Skin Graft."

Dr. Anton J. Carlson, Chicago, addressed a public meeting in Canton, November 25, on pneumonia; the session was sponsored by the Fulton County Medical Society.

Dr. Leon Unger addressed the Lake County Medical Society, December 10, on "Allergy."

Dr. Hattie B. Melaik was elected president of the Kewanee Physicians club this week at a meeting held in the Parkside Hotel. Dr. Thomas B. Carney was named vice-president and Dr. William R. Smith secretary and treasurer. Dr. Melaik succeeds Dr. C. A. Fortier as president.

Speakers before the Chicago Roentgen Society, November 14, included Dr. Bernard H. Nichols, Cleveland, on "Roentgenology in the Diagnosis of Obstructive Lesions of the Ureters."

The Chicago Neurological Society was addressed November 21, among others, by H. W. Magoun, Ph.D., and W. Kendrick Hare, M.S., on "Postural Reactions from Stimulation of the Interior of the Cerebellum."

Dr. Leo K. Campbell, Chicago, addressed the Will-Grundy County Medical Society, November 27, on "Diagnosis and Management of Diabetes Mellitus." The society was addressed by Dr. Maurice L. Blatt, Chicago, December 4, on "Neuromuscular Diseases in Childhood."

At a meeting of the Peoria City Medical Society, December 3, Dr. Arthur Sprenger, Peoria, discussed "Recent Observations on the Etiology and Treatment of Urolithiasis." Dr. Leon M. Bogart, Flint, Mich., spoke, November 19, on "Abdominal Adhesions."

At a meeting of the Henry County Medical Society in Kewanee, November 7, speakers were Drs. Nathan S. Davis III and Robert O. Ritter, Chicago, who discussed coronary arteriosclerosis and fractures of the extremities, respectively.

News Notes

—The seventy-second annual midwinter meeting of the Chicago Dental Society will be held at the Stevens Hotel, February 17-20.

—The Mercer County Academy of Medicine was recently organized; meetings will be held twice each month, it was reported.

—The Illinois Department of Health began a new series of dramatized broadcasts over Station WCBS in Springfield, December 2. The programs will be presented on Monday and Friday afternoons, portraying in the form of playlets the health adventures and experiences of the Hunter family, who live in the imaginary village of Utopia.

—Students entering Loyola University School of Medicine in October, 1939, must present a minimum of three years of college (premedical) work, according to an announcement from the dean. Accordingly, all students enrolling in the pre-medical curriculum beginning in the fall of 1936 will be subject to the three year premedical requirement. The predental requirement was raised from one to two years, to become effective in the fall of 1937.

—Dr. Elmer L. Sevringhaus, associate professor of medicine, University of Wisconsin Medical School, Madison, lectured on "Clinical Pathology of Endocrine Disturbances" at the Institute for Psychoanalysis, December 10. According to previous announcement, Dr. Solomon Strouse was to have been the speaker but illness has compelled him to leave Chicago for the winter. Dr. Sevringhaus will also lecture, January 10, when he will review the results of the clinical research of his group during the last few years on the mental and peripheral nervous

disturbances associated with various irregularities in the menstrual cycle and during the menopause.

—Seventy-six hospitals cooperating in a study of maternal mortality in Chicago reported 270 maternal deaths in 1934. Of 38,139 mothers delivered in the hospitals, operative intervention was used for 7,765. There were 2,059 abortions reported and 248 ectopic pregnancies. This work is being sponsored by the maternal welfare committee of the Chicago Gynecological Society. The committee is made up of sixty-eight physicians, who represent the seventy-six hospitals in the city doing obstetric work. It is hoped to continue the study until data have been accumulated on 1,000 cases. More than 600 cases have already been studied.

—The Belleville branch of the St. Clair County Medical Society held election of officers at a regular meeting yesterday afternoon in St. Elizabeth Hospital.

Dr. Charles Bauman was elected president, Dr. Phillip Griesbaum, of Lebanon, vice-president, and Dr. G. C. Otrich secretary. Dr. W. A. Dew is the retiring president.

On the board of censors the following were elected: Dr. J. E. Wheeler, Dr. L. W. Roth and Dr. C. E. Baldree.

Dr. Otrich was elected delegate to the Illinois State medical meet to be held in Springfield next May. Dr. Edmond Bechtold was elected alternate.

—Dr. Robert Sonnenschein addressed the Rock River Valley Eye, Ear, Nose and Throat Society at Rockford, Illinois, December 17th on the subject of "Methods and Significance of Functional Hearing Tests and Their Bearing upon the Diagnosis and Treatment of Non-Suppurative Middle Ear Disease."

Deaths

JULUIS MORRIS ABELIO, Los Angeles; College of Physicians and Surgeons of Chicago, 1892; formerly on the staff of the Mount Sinai Hospital, Chicago; aged 72; died, November 8, in the Cedars of Lebanon Hospital, of bronchopneumonia.

JENNIE BAKER, Chicago; College of Medicine and Surgery, Chicago 1908; aged 72; died, September 28, of cerebral hemorhage.

THOMAS A. CAHILL, Chicago; Chicago College of Medicine and Surgery, Medical Department of Valparaiso University, 1904; aged 56; died, September 8, of carcinoma of the lung.

DANIEL DAVID COFFEY, Chicago; University of Maryland School of Medicine, Baltimore, 1903; for many years manager of the Chicago State Hospital; aged 55; died, November 22, of myocarditis.

CHARLES CLAUD GREENFIELD, Argenta, Ill.; St. Louis College of Physicians and Surgeons, 1904; member of the Illinois State Medical Society; aged 56; died, September 13, in Decatur, of strangulation of the bowel.

JOHN F. HARGAN, Mound City, Ill.; University of Louisville (Ky.) Medical Department, 1891; member of the Illinois State Medical Society, aged 71; died, September 29, in St. Mary's Infirmary, Cairo, of cerebral hemorrhage.

HOMER E. JAMISON, Millburn, Ill.; College of Physicians and Surgeons of Chicago, 1894; aged 77; died, November 9.

FREDERICK HENRY LANGHORST, Elgin, Ill.; Rush Medical College, Chicago, 1900; a Fellow, A. M. A.; fellow of the American College of Surgeons; aged 64; on the staffs of St. Joseph's Hospital and Sherman Hospital, where he died, September 27.

JAMES ALLEN MARSHALL, Pontiac, Ill.; Detroit College of Medicine, 1886; a Fellow, A. M. A.; past president of the Livingston County Medical Society; for thirty-five years attending surgeon at the Illinois State Reformatory; aged 74; died, November 15, in the Passavant Memorial Hospital, Chicago, of carcinoma of the transverse colon.

JOHN GORDON MCGUIRE, Chicago; Chicago College of Medicine and Surgery, 1911; also a minister; aged 62; died, November 30, in the Cook County Hospital, of cerebral hemorrhage.

CHRISTOPHER LORENZO OATMAN, Collinsville, Ill.; Barnes Medical College, St. Louis, 1899; aged 58; died, October 4, of chronic myocarditis.

JOHN SAID PEREKHAN, Chicago; Rush Medical College Chicago, 1888; a Fellow, A. M. A.; aged 68; died, November 22, in a local hospital of carcinoma of the stomach.

ELISHA L. REEVES, Decatur, Ill.; Eclectic Medical Institute, Cincinnati, 1890; aged 69; died, September 30, of angina pectoris.

ARTHUR ROWLEY REYNOLDS, Chicago; Bellevue Hospital Medical College, New York, 1876; a Fellow A. M. A.; health commissioner of Chicago from 1893 to 1895 and again from 1897 to 1905; in 1911 named lieutenant and in 1917 a captain in the medical reserve corps of the army; aged 81; died, November 14, in the Augustana Hospital, of injuries received when he was struck by an automobile.

DAVID DOUGLAS STEINER, Quincy, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; aged 75; died, September 27, of cerebral hemorrhage.

WILLIAM H. ZORGER, Champaign, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; member of the Illinois State Medical Society; aged 75; died, September 22.

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